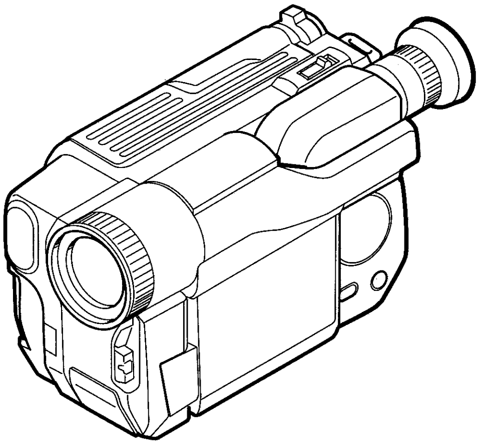
HITACHI

TK | No.7001E,G

SERVICE MANUAL
Wartungsanleitung

VM-H768LE(AU)/H768LE(SW)
VM-H765LE/H765LE(UK)
VM-H665LE/H660E
VM-E568LE(AU)/E568LE(SW)
VM-E565LE/E563LE(UK)
VM-E368E(AU), E368E(SW)
VM-E360E/E360E(UK)

AC Adapter
VM-ACE5E/ACE5E(AU)/ACE5E(UK)

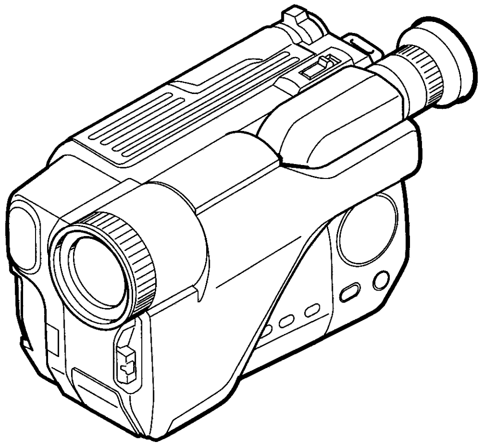


VM-H768LE(AU)/H768LE(SW)/H765LE/H765LE(UK)/H665LE/E568LE(AU)/E568LE(SW)/E565LE/E563LE(UK)

UH MECHANISM

■ When Servicing the Mechanism:
This camera/recorder uses a UH mechanism. When servicing the UH mechanism, refer to the following service manuals:

Item	Manuals to be referred to
Disassembly	UH Mechanism (No. 6811E,G)
Mechanical Adjustment	UH Mechanism Supplement (No. 6811E,G-1)
Maintenance/ Inspection Procedure	UH Mechanism (No. 6811E,G)
Exploded View	Chapter 4 in this manual



VM-H660E/E368E(AU)/E368E(SW)/E360E/E360E(UK)

■ Wartungsarbeiten an dem Laufwerk:
Dieses Video-Kamerarecorder verwendet ein UH-Laufwerk. Wenn Wartungsarbeiten an dem UH-Laufwerk ausgeführt werden, die folgenden Wartungsanleitungen beachten:

Wartungspunkt	Zu beachtende Anleitung
Demontage	UH-Laufwerk (Nr. 6811E,G)
Mechanische Einstellung	UH-Laufwerk Ergänzung (Nr. 6811E,G-1)
Wartungs/ Inspektionsvorgang	UH-Laufwerk (Nr. 6811E,G)
Explosionszeichnung	Kapitel 4 in dieser Anleitung

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Hi8

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT
Änderungen der Technischen Daten und Teile im Sinne ständiger Verbesserung vorbehalten

8mm VIDEO CAMERA/RECORDER
8-mm-Video-Kamerarecorder

January 2000 Digital Media Products Division,Tokai

CAUTION

Lithium battery; danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacuturer's instructions.

When replacing the lithium battery it is important to use the same type and connect it correctly.

WARNING:
- Lithium batteries contain dangerous chemicals.
- Handle and dispose of with great care.
- Do not throw in a fire.
- Do not short circuit it.
- For disposal place in a plastic bag and put in waste bin.

CAUTION (COLOR LCD)

LCD display; the liquid crystal display (LCD) panel is mode by highly precise technology.
More than 99.99% of its picture elements (pixels) are effective, but some (less than 0.01%) may appear as colored bright dots. This mode not indicate a fault as the LCD panel stretches the limits of current technology.

CAUTION (CRT EVF)

Be careful of the section painted in white on the electronic viewfinder circuit board as it generates a high voltage.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

X-RAY RADIATION

The primary source of X-ray radiation in this viewfinder is the picture tube. The tube used in this viewfinder is specially constructed to limit X-ray radiation emission. For continued X-ray radiation protection, the replacement tube must be same type as the original, Hitachi approved one.

How to discriminate the "TYPE" identifications in the manual

The parts and circuits are identified by "TYPE" in this manual to discriminate the differences between models. The TYPE numbers are the same as the model numbers. The table below shows how to read the type identifications.

TYPE identification	Model name
TYPE 768	VM-H768LE(AU)/H768LE(SW)
TYPE 765	VM-H765LE/H765LE(UK)
TYPE 665	VM-H665LE
TYPE 660	VM-H660E
TYPE 568	VM-E568LE(AU)/E568LE(SW)

TYPE identification	Model name
TYPE 565	VM-E565LE
TYPE 563	VM-E563LE(UK)
TYPE 465	Not used
TYPE 368	VM-E368E(AU)/E368E(SW)
TYPE 360	VM-E360E/E360E(UK)

How to discriminate the "Model" identifications in electric circuit adjustment in the manual.

If the adjustment values (input data) vary depending on the model, they will be individually described using "MODEL" indications. The following shows the relationship between the "MODEL" indications and model names:

MODEL identification	Model name
Model HE	VM-H765LE/H765LE(UK) VM-H665LE VM-H660E
Model EE	VM-H768LE(AU)/H768LE(SW) VM-E568LE(AU)/E568LE(SW) VM-E565LE

MODEL identification	Model name
Model EE	VM-E563LE(UK) VM-E368E(AU)/E368E(SW) VM-E360E/E360E(UK)
Model HA	Not used
Model EA	Not used

ENGLISH

Notes When Using Service Manual

The following shows the contents to be noted when using service manual:

1. Value units used in parts list

Certain symbols are indicated below for value units of resistors, capacitors and coils in parts list. When you read them note the following regular indications:

Parts	Indication in list	Regular indication
Resistor	KOHM	kΩ
Capacitor	UF	μF
	PF	pF
Coil	UH	μH
	MH	mH

2. Values in schematic diagrams

The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

[Resistors]

Item	Indication
Value	No indication ········ Ω K ········ kΩ M ········ MΩ
Tolerance	No indication ········ ±5% (All tolerances other than ±5% are indicated in schematic diagrams)
Power capacitance	No indication ········ 1/8W (1/16W for leadless resistors without indication) All capacitances other than the above are indicated in schematic diagrams.

[Capacitors]

Item	Indication
Value	No indication ········ μF P ········ pF
Dielectric strength	No indication ········ 50V (All dielectric strengths other than 50V are indicated in schematic diagrams)

[Coils]

Item	Indication
Value	μ ········ μH m ········ mH

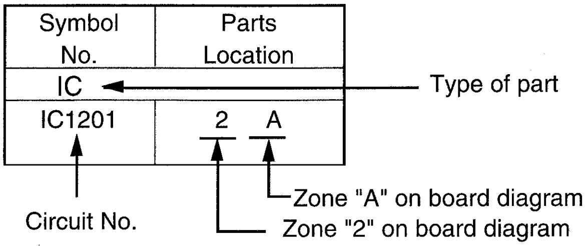
3. Identifications of sides A/B in circuit board diagrams

1) Board having a pattern on one side and parts on both sides.
   - Side A: Shows discrete parts, viewed from the pattern side.
   - Side B: Shows leadless parts, viewed from the pattern side.
2) Board having patterns on both sides and parts on both sides.
   - Side A: Shows parts and patterns which can be seen when the case is opened.
   - Side B: Shows parts and the pattern on the back of side A.

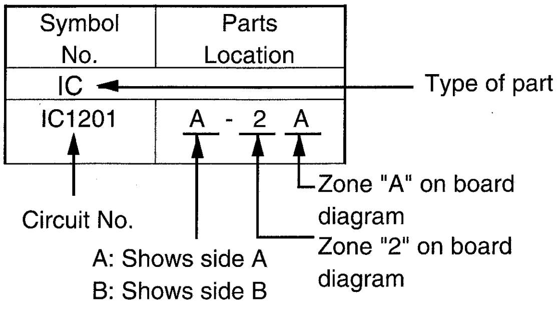
4. Table for indexing locations of parts

This table shows locations of each part on circuit board diagrams. The locations are indicated using the guide scales on the external lines of diagrams.

1) One diagram indicated for each board


Symbol No.
Parts Location
IC
Type of part
IC1201
2 A
Zone "A" on board diagram
Circuit No.
Zone "2" on board diagram

2) Two diagrams indicated for each board


Symbol No.
Parts Location
IC
Type of part
IC1201
A - 2 A
Zone "A" on board diagram
Circuit No.
Zone "2" on board diagram
A: Shows side A
B: Shows side B

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CHAPTER 1 GENERAL INFORMATION

SPECIFICATIONS

General Specifications

Power requirements	7.2V DC
Power consumption	VM-H768LE(AU)/H768LE(SW): 3.6W (when recording/LCD monitor OFF) 4.1W (when recording/LCD monitor ON) VM-H765LE/H765LE(UK): 3.6W (when recording/LCD monitor OFF) 4.1W (when recording/LCD monitor ON) VM-H665LE: 3.5W (when recording/LCD monitor OFF) 4.0W (when recording/LCD monitor ON) VM-E568LE(AU)/E568LE(SW): 3.4W (when recording/LCD monitor OFF) 3.8W (when recording/LCD monitor ON) VM-E565LE: 3.4W (when recording/LCD monitor OFF) 3.8W (when recording/LCD monitor ON) VM-E563LE(UK): 3.4W (when recording/LCD monitor OFF) 3.8W (when recording/LCD monitor ON) VM-H660E: 3.5 W (when recording) VM-E368E(AU)/E368E(SW): 3.4W (when recording) VM-E360E/E360E(UK): 3.4W (when recording)
Operating temperature	0°C to 40°C
Operating humidity	< 80 %
Storage temperature	-20°C to 60°C
Dimensions	111.5 (W) mm x 111.5 (H) mm x 202 (D) mm
Weight	VM-H768LE(AU)/H768LE(SW)/H765LE/H765LE(UK)/H665LE & VM-E568LE(AU)/E568LE(SW)/E565LE/E563LE(UK): Approx. 836 g (without battery pack and cassette) VM-H660E/E368E(AU)/E368E(SW)/E360E/E360E(UK): Approx. 757 g (without battery pack and cassette)

Video Recorder Specifications

Format	8 mm
Record/playback	Two video record/playback heads
Video signal	PAL colour & CCIR monochrome signals 625 lines
Tape speed	SP: 20.05 mm/s
Video output	1.0 Vp-p, 75 ohm
Audio output	-8 dBs, less than 1k ohm
Fast forward/rewind time	Approx. 6 minutes with P5-90 cassette

Camera Specifications

Scanning	625 lines/50 fields/25 frames	
Required minimum illumination	VM-H768LE(AU)/H768LE(SW):	0.3 lx
	VM-H765LE/H765LE(UK)/H665LE/H660E:	0.5 lx
	VM-E568LE(AU)/E568LE(SW)/E565LE/E563LE(UK)/ E368E(AU)/E368E(SW)/E360E/E360E(UK):	0.3 lx
Camera device	1/4 inch C.C.D.	
Lens	F1.6 to 3.8 (4 to 88 mm) 22:1 power zoom lens with auto focus and auto iris functions	
Lens diameter	46 mm	

COMPARISON OF FEATURES

Note: Destinations normally added at the end of model names, (AU), (SW), (UK), etc. are omitted in this table.

	ITEM	VM-H755LE/E558LE VM-E555LE/E553LE	VM-H768LE/H765LE VM-H665LE/E568LE VM-E565LE/E563LE	VM-H660E/E368E/E360E
GENERAL	Power Requirements	7.2V DC		
	Power Consumption (when recording/ LCD monitor ON)	4.6W [VM-E755LE] 4.3W [VM-E558LE/E555LE/ E553LE]	4.1W [VM-H768LE/H765LE] 4.0W [VM-H665LE] 3.8W [VM-W568LE/E565LE/ E563LE]	3.5W [VM-H660E] 3.4W [VM-E368E/E360E]
	Dimensions (W mm × H mm × D mm)	118.5 × 102.5 × 181	111.5 × 111.5 × 202	
	Weight	Approx. 850g	Approx. 836g	Approx. 757g
VIDEO	Format	8 mm (Hi-8) [VM-H755LE] 8 mm [VM-E558LE/E555LE/ E553LE]	8 mm (Hi-8) [VM-H768LE/ H765LE/H665LE] 8 mm [VM-E568LE/E565LE/ E563LE]	8 mm (Hi-8) [VM-H660E] 8 mm [VM-E368E/E360E]
	Record/Playback System	Two video record/playback heads		
	Video Signal	PAL colour & CCIR monochrome signal 625 line		
	Tape Speed	SP: 20.05mm/s		
	F.F/Rew Time	Less than 6 minutes with P5-90 cassette		
	Head Weel	40 mm		
	Basic Chassis Type	UH		
CAMERA	Scanning	625 lines/50 fields/25 frame		
	Required Minimum Illumination	0.5 lx [VM-H755LE] 0.1 lx [VM-E558LE] 0.3 lx [VM-E555LE/E553LE]	0.5 lx [VM-H765LE/H665LE] 0.3 lx [VM-H768LE/E568LE/ E565LE/E563LE]	0.5 lx [VM-H660E] 0.3 lx [VM-E368E/E360E]
	Camera Device	1/4 inch C.C.D		
	Lens Diameter	46 mm		
	Zoom Ratio	22 : 1 (4.0 - 88.0mm)		
	Aperture	F1.6 - 3.8		
	Zoom Speed	Adjustable speed		
FEATURES	Electronic Viewfinder (EVF)	CRT (Black & White)		
	Electrical Zoom Function	Yes [x 400 (22 × 12 × INST. ZOOM)]	Yes [x 500 (22 × 22)]	
	INST. ZOOM Function	Yes (x 1.5)	No	
	Autofocus System	Video AF System		
	Program AE (Shutter Speed)	Yes (Program AE only)		
	Selective Program AE	No	Yes [VM-H768LE/H765LE/ H665LE/E565LE/E563LE] (AUTO, SPORTS, PORTRAIT, SPOTLIGHT, GAIN UP) No [VM-E568LE]	Yes [VM-H660E] (AUTO, SPORTS, PORTRAIT, SPOTLIGHT, GAIN UP) No [VM-E368E/E360E]
	AV Input Function	No		
	S-Connector Output	Yes [VM-H755LE] No [VM-E558LE/E555LE/ E553LE]	Yes [VM-H768LE/H765LE/ H665LE] No [VM-E568LE/E565LE/ E563LE]	Yes [VM-H660E] No [VM-E368E/E360E]
	AV Dubbing	Yes (Using the remote controller)		
	Audio System & Microphone	Stereo [VM-H755LE] Monaural [VM-E558LE/ E555LE/E553LE]	Stereo [VM-H765LE/H665LE] Monaural [VM-H768LE/ E568LE/E565LE/E563LE]	Monaural
	Multi Playback (PAL 60 Conversion)	Yes (Selective)		
	Digital Effect & Fade	Yes		
	Date Search	Yes		

ITEM		VM-H755LE/E558LE VM-E555LE/E553LE	VM-H768LE/H765LE VM-H665LE/E568LE VM-E565LE/E563LE	VM-H660E/E368E/E360E
FEATURES	Tape Analyzer ATRS	No	Yes [VM-H768LE/H765LE H665LE] No [VM-E568LE/E565LE/E563LE]	Yes [VM-H660E] No [VM-E368E/E360E]
	TAPE+ Function	No	Yes [VM-H768LE/H765LE H665LE] No [VM-E568LE/E565LE/E563LE]	Yes [VM-H660E] No [VM-E368E/E360E]
	Electronic Image Stabilizer (EIS)	Yes (Picture element system) [VM-H755LE] Yes (Electrical system) [VM-E555LE] No [VM-E558LE/E553LE]	Yes (Picture element system) [VM-H768LE/H765LE/VM-H665LE/E565LE] No [VM-E568LE/E563LE]	Yes (Picture element system) [VM-H660E] No [VM-E368E/E360E]
	LCD Display	2.5 inch		No
	Internal DC Light	No	Yes [VM-H768LE/H765LE] No [VM-H665LE/E568LE/E565LE/E563LE]	No
	Internal Battery Charge	No	Yes	
ACCE-SSORY	AC Adapter/Charger	VM-ACE5E		
	Battery Pack	VM-BPL13		
	Remote Controller	VM-RME411A(R)	VM-RME611A [Except for VM-E568LE]	VM-RME611A [Except for VM-E368E]

COMPARISON OF MAIN CONTROL ICs

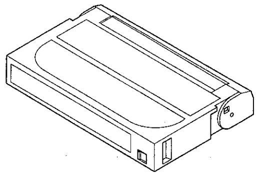
Note: Destinations normally added at the end of model names, (AU), (SW), (UK), etc. are omitted in this table.

ITEM		VM-H755LE/E558LE VM-E555LE/E553LE	VM-H768LE/H765LE VM-H665LE/E568LE VM-E565LE/E563LE	VM-H660E/E368E/E360E
CCD SENSOR & GYRO	CCD Sensor	ICX211AK-L (IC1001) [VM-H755LE] ICX207AK-K (IC1001) [Except for VM-H755LE]	ICX211AK-L (IC1001) [VM-H765LE/H665LE] ICX207AK-K (IC1001) [VM-H768LE/E568LE/E565LE/E563LE]	ICX211AK-L (IC1001) [VM-H660E] ICX207AK-K (IC1001) [VM-E368E/E360E]
	V-Move (Vertical Gyro)	ENC-03JA-03 (IC1401) [Except for VM-E558LE/E553LE]	ENC-03JA-03 (IC1401) [Except for VM-E568LE/E563LE]	ENC-03JA-03 (IC1401) [Except for VM-E368E/E360E]
	H-Move (Horizontal Gyro)	ENC-03JB-03 (IC1402) [Except for VM-E558LE/E553LE]	ENC-03JB-03 (IC1402) [Except for VM-E568LE/E563LE]	ENC-03JB-03 (IC1402) [Except for VM-E368E/E360E]
	Gyro Amp	NJM064V (IC1403) [Except for VM-E558LE/E553LE]	NJU7018M (IC1403) [Except for VM-E568LE/E563LE]	NJU7018M (IC1403) [Except for VM-E368E/E360E]
	Sensor Drive (Drive Pulse Generator)	μPD16510GR (IC1103)	μPD16510GR (IC0203)	
VIDEO PROCESS & ATF	Video DSP (Digital Process)	HG73C012TE (IC1102) HG73C061TE(IC0201)	MB87L1551PMT2 (IC0201)	
	ATF	μPC5023GS-122-E1 (IC0601)		
	LCD Process	IR3Y29AM (IC5301)		
	LCD D/A Conv.	M62352GP (IC5302)		
	LCD Pulse Gen.	LZ9GH18 (IC5601)		
	LCD OSC Cont.	NJM3414 AV (IC5602)		
	CDS/AGC & A/D Conv.	HD49323F (IC1101)	HD49323F (IC0202)	
	VideoHead Switch	HA118189MPER (IC0101)	HA118189MPER (IC0101)	

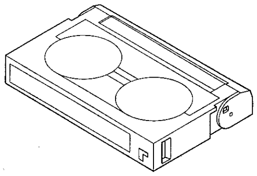
ITEM		VM-H755LE/E558LE VM-E555LE/E553LE	VM-H768LE/H765LE VM-H665LE/E568LE VM-E565LE/E563LE	VM-H660E/E368E/E360E
VIDEO PROCESS	Phase EQ/FM Peak	μPC5023GS-146 (IC0102)	Not provided	
	V. RAM	MSM54V16258A50 (IC0202)		
	Sync Sepa.	BA7071F (IC0203)		
	Video Amp	μPC5023GS-153 (IC0204)	μPC5020GS-129 (IC0301)	
	RGB Amp	Not provided	μPC5020GR-125-8J (IC0350)	Not provided
CAMERA CONTROL & SYSTEM CONTROL	Digital μP (D-μP)	HD6432237M03TE (IC1104)	HD6432237E6H (IC1104)	
	EEPROM	X2509V-217 (IC1105)	AT25160 (IC1105)	
	D/A Conv.	Not provided	MB88347PFV (IC1111)	Not provided
	F Det./Iris Drive	μPC5023GS-147GJG (IC1201)		
	Zoom Motor/Focus Motor Driver	μPD16833AG3 (IC1301)		
	System Control μP (S-μP)	CXP87248A-153R (IC0901)	CXP87360-132R (IC0901)	
	Back-up Det.	NJU7284EV (IC0902)	NJU7285BV (IC0902)	
	Character Gen.	μPD6461GS-942-E1(IC0904) [VM-H755LE/E555LE/E553LE/] μPD6461GS-941-E1(IC0904) [VM-E558LE]	μPD6461GS-947-E1(IC0904) [VM-H765LE/H665LE/E565LE/E563LE] μPD6461GS-941-E1(IC0904) [VM-H768LE/E568LE]	μPD6461GS-947-E1(IC0904) [VM-H660E/E360E] μPD6461GS-941-E1(IC0904) [VM-E368E]
	Level Shift	SN74AHC126PW (IC0906)	Not provided	
	IR Receiver	GP1U101X (IC0907)	GP1U101X (IC0701)	
SERVO & POWER	Cylinder Motor Drive	LB1950V (IC0631)		
	Capstan Motor Drive	LB1991V (IC0651)		
	Loading Motor Drive	BA6417F (IC0671)		
	PWM	BA9735KV (IC0551)	BA9736KV (IC0551)	
	5V Reg.	PQ20WZ51 (IC0553)		
	CHG Current Cont.	MM6564XFBE (IC0001)		
AUDIO	Audio Process	HA118193F (IC0401) [VM-H755LE] LA7458W (IC0401) [VM-E558LE/E555LE/E553LE]	HA118193F (IC0401) [VM-H765LE/ H665LE] LA7458W (IC0401) [VM-H768LE/E568LE/E565LE/E563LE]	LA7458W (IC0401)
	Speaker Amp	TDA7052AT (IC0402S) [VM-H755LE] Not provided [VM-E558LE/E555LE/E553LE]	TDA7052AT (IC0461S) [VM-H765LE/H665LE] Not provided [VM-H768LE/E568LE/E565LE/E563LE]	Not provided
	Audio Matrix	NJM2112V (IC0403S) [VM-H755LE] Not provided [VM-E558LE/E555LE/E553LE]	NJM2112V (IC0471S) [VM-H765LE/H665LE] Not provided [VM-H768LE/E568LE/E565LE/E563LE]	Not provided
EVF & LCD	EVF Video Amp/Vertical & Horizontal Deflection	HA118179F (IC2001)	In the EVF unit.	
	LCD SWR.	TL5001CD (IC5401, IC5501)	TL5001CD (IC5501)	Not provided
	LED Cont.	NJM2406F (IC5502)	Not provided	Not provided

JIGS AND TAPES FOR SERVICE

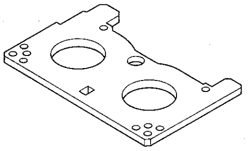
1. Alignment Tape
20HSC-3: No. 7099232



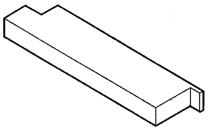
2. Cassette Torque Meter
SRK-8T-232: No. 7099236
SRK-8T-212: No. 7099402



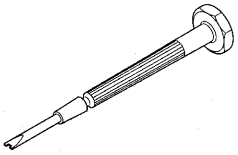
3. Master Plane
No.7099237



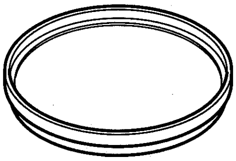
4. Reel Disk Height Jig
No. 7099238



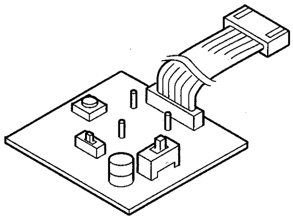
5. Special Driver
No. 7099239



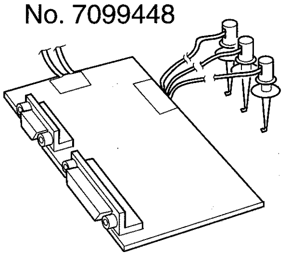
6. C12 Light Balance Filter
No. 7099369



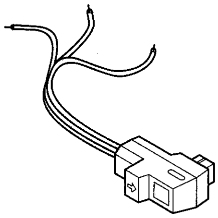
7. ATF-R Jig *(*1,*2)*
No. 7099461



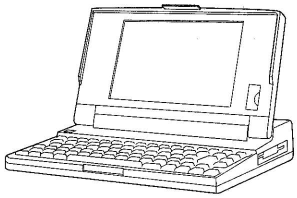
8. DSP-R jig
No. 7099448



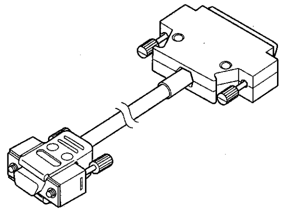
9. DSP AV Output Jig
No. 7099456



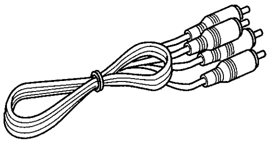
10.Presonal Computer
[Goods on the market]



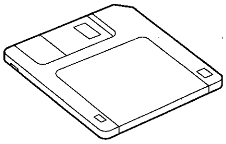
11.Personal Computer Cable
RS-232C (9-pin or 25-pin)
Straight Type Cable
[Goods on the market]



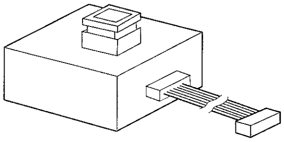
12.AVOutput Cable *(*3)*
[Accessory]



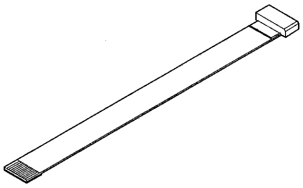
13.Adjustment Floppy Disk ***[New Jig]***
No. TP12111



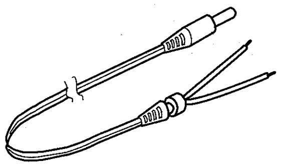
14.8 - 20 Pin Extention Cable ***[New Jig]***
No. TS15411



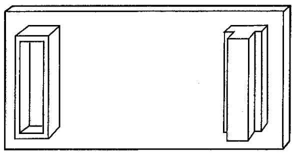
15.4-Pin Extension Cable
No.7069203



16.ODC DC CORD
No. TE13171



17.80-Pin Extention Board ***[New Jig]***
No. JP25461



Caution for jigs :

**1.* Always set SW3 on the ATF-R jig to ON.
**2.* The ATF jig (No.7099386) can also be used in place of ATF-R jig to adjust this model.
**3.* Either the monaural or stereo AV output cable can be used.

HOW TO USE THE EXTENSION CABLES AND JIGS

Name of Jig	Parts No.	How to Use
8 - 20 Pin Extention Cable	TS15411	Used for electrical adjustment. Connected between PG905 on the VCA circuit board and DSP Output Jig (20 pins). Refer to Fig. 1-1 on the page 3-1.
4-Pin Extension Cable	7069203	Installed between the VCA circuit board and mode switch (mechanism state switch).
ODC DC Cord	TE13171	Power supply cable for power shut off level (ODC) adjustment. Refer to Fig. 1-1 on the page 3-1. Positive: Black Negative: Black & White
80-Pin Extension Board	JP25461	Installed between the VCA circuit board and CON circuit board.

SERVICE POSITION

NOTE :

1. If the front cover assembly is connected to the VCA circuit board, the provided remote control can be used to operate the camera/recorder without connecting the CON circuit board.
2. The VCR block can be operated with the camera chassis assembly removed.

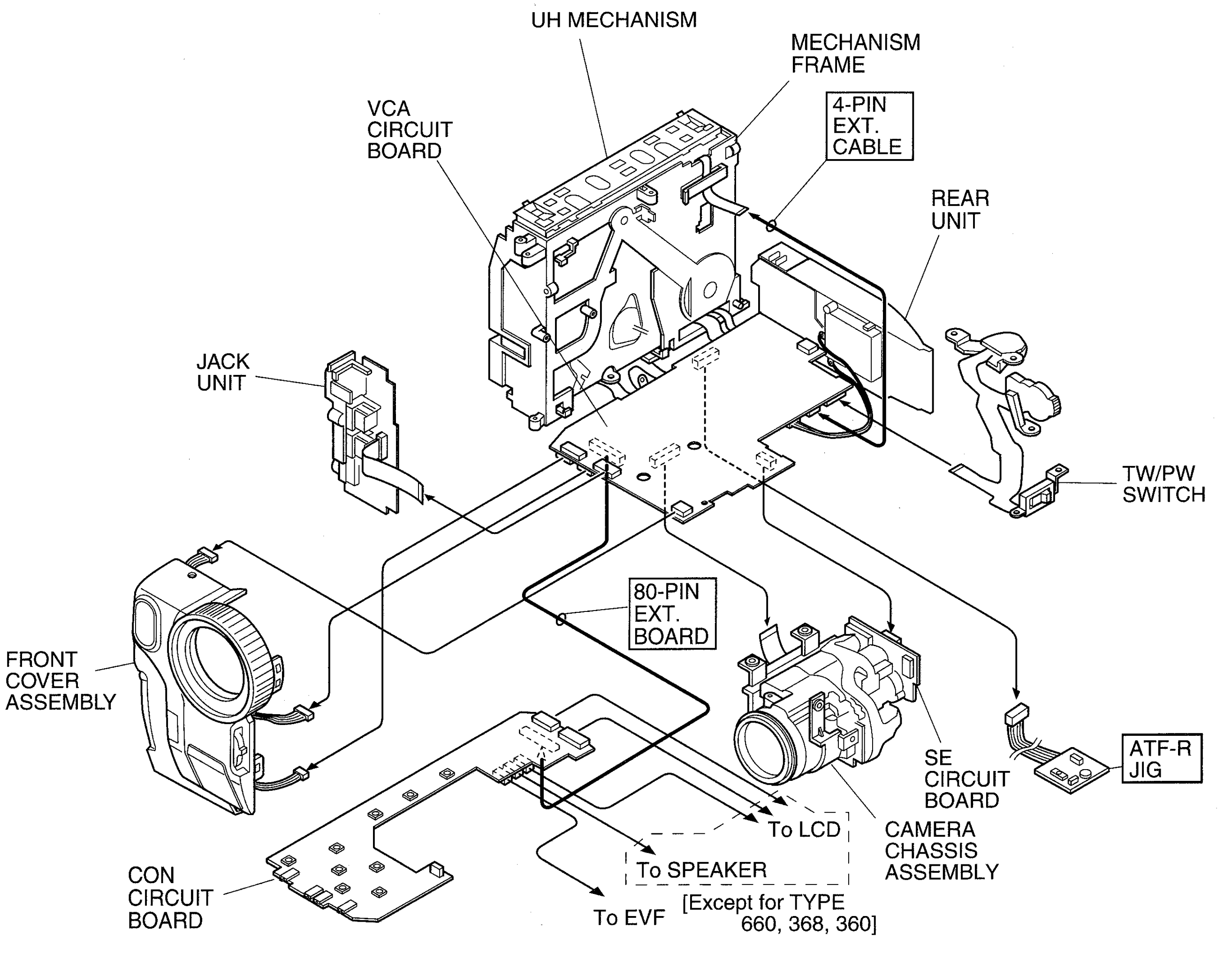

UH MECHANISM
MECHANISM FRAME
VCA CIRCUIT BOARD
4-PIN EXT. CABLE
REAR UNIT
JACK UNIT
TW/PW SWITCH
80-PIN EXT. BOARD
FRONT COVER ASSEMBLY
SE CIRCUIT BOARD
ATF-R JIG
To LCD
CAMERA CHASSIS ASSEMBLY
To SPEAKER
CON CIRCUIT BOARD
To EVF
[Except for TYPE 660, 368, 360]

Fig.1-1 Extension Cable and Jig Connection Diagram

SERVICE MANUAL ABBREVIATION LIST

A	
ACC	Automatic Color Control
A/D	Analog-to-Digital Converter
ADD	Adder
ADP.	Adapter (AC Adapter)
ADRS	Address
A.DUB	Audio Dubbing
AF	Automatic focus (Autofocus)
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AGC KILLER	AGC Killer Voltage
AI	Automatic Intelligence
AIC	Automatic Iris Control
ALC	Automatic Level Conrol
AMP	Amplifier
APC	Automatic Phase Control
ASBL	Assemle (Phase Matching)
ATRS	Auto Tape Recording System
AUD.	Audio
AUX	Auxiliary

B	
B (BLU)	Color Signal Blue
BATT.	Battery
BF	Burst Flag
BG	Burst Gate or Back Ground
BGP	Burst Gate Pulse
BLC	Backlight Compensation
BLK	Blanking
BPF	Bandpass Filter
BUF.	Buffer Amplifier
B-YL	Color Difference Signal B-YL

C	
C (CHROMA)	Chrominance Signal
CAM	Camera
CAPST.	Capstan
CARRI.	Carrier
CATV	Cable TV
C.BLK	Composite Blanking
CCD	Charge Coupled Device
CDS	Correlated Double Sampling
C.FG (CFG)	Capstan Frequency Generater
C.FREE RUN	Capstan Free Run
CG	Character Generator
CH (Ch or ch)	Channel
CHARA.	Character
CHD	Camera Horizontal Drive Pulse
C.MEMORY	Counter Memory
CNR	Chroma Noise Reducer
COM.	Common
COMPA.	Comparator
COMPE.	Compensator
COMP-EXP	Compressor-Expander
COMPO	Composite
CONT.	Control
CONV.	Converter
COUNT.	Counter
CP	CP
C.PAUSE	Camp Pulse
C/R	Capacitor/Resistor
C.RESET	Countor Reset or Camera Reset
C.REVERSE	Count Reverse
CS	Communication Signal
CST	Cassette
C.SYNC	Composite Synchronizing Signal
CTL	Control Track Pulse (Control)
CYL	Cylinder

D	
D (Digital)	Digital
DA	Double Azimuth
D/A	Digital to Analog Converter
D-D	Direct Drive
DEEMPHA.	Deephasis
DEF	Deflefction
DEMOD.	Demodulator
DET	Detector
DIFF. AMP	Differential Amplifier
DISP.	Display
DL	Delay Line
DO	Dropout
DOC	Dropout Compensator
DSP	Digital Signal Processor
DUB	Dubbing
DV	Digital Video Format
DVD	Digital Video Disk
D-VHS	Digital VHS
D/W	Dark/White
D.ZOOM (DZ)	Digital Zoom

E	
EAROM (EA-ROM)	Electrically Alterable Read Only Memory
E-E	Electronic-to-Electronic
EEPROM (EEP-ROM)	Electrical Erasable Proframmed
EIS (E.I.S.)	Electronic Image Stabilizer
EMPHA. (EMPH)	Emphasis
EQ	Equalizer
ESS	End Sensor Supply (Supply End Sensor)
EST	End Sensor Take-up (Take-up End Sensor)
EVF	Electronic Viewfinder
EXT.	External
E.ZOOM	Electrolical Zoom

F	
F.ADV	Frame Advance
FB	Feed back
FE	Full Erase
FF (F/F)	Flip Flop
F.FWD	Fast Forward
FG	Frequency Generator
FM	Frequency Modulation
FREQ.	Frequency
fsc	Sub Carrier Frequency
F/V	Frequency-to-Voltage Converter
FWD	Forward

G	
G (GRN)	B (BLU) Color Signal Green
GEN.	Generator
GND	Ground

H	
H (HORIZ.)	Horizontal
HB	Hi-Band
HBF	Horizontal Burst Flag
HD	Horizontal Drive

H	
Hi-Fi	High Fidelity
HPF	High-pass Filter
HSW	Head Switch

I	
IF	Intermediate Frequency
INDI.	Indicator
INST.	Instant
INT.	Internal
INV.	Inverter
I/O	In/Out (Input/Output)
IR	Infrared Rays

L	
LB	Low-Band
LCD	Liquid Crystal Dissplay
LIN.	Linear
LM	Loading Motor
LNC	Line Noise Canceller
LOG	Logarithm
LP	Long Play
LPF	Low-pass Filter
L/R	Left/Right
LUMA	Luminance

M	
MAN	Manual
M.BRAKE	Main Brake
M.CUT	Monitor Cut
MEM.	Memory
MIC	Microphone
MIX	Mixer
MMV	Monostable Multivibator
MOD.	Modulator
MPEG	Noving Picture coding Experts Group
M.STATE	Mechanism State
M.STOP	Memory Stop

N	
NEG	Negative
NFB	Negative Feed Back
NOR. (NORM)	Normal
NR	Noise Reduction

O	
OB	Optial Black
OSC	Oscillator
OSD	On-Screen Display

P	
PB (PLAY)	Playback
PCM	Pulse Code Modulation
PG	Pulse Generator
PLL	Phase Locked Loop
POS.	Positive
PROG.	Program
PROT.	Protector
PWM	Pulse Width Modulation

R	
R (RED)	Color Signal Red
RAM	Random Access Memory
REC	Record
RECT.	Rectifier
REF.	Reference
REG.	Regulator
REV	Review
REW	Rewind
RF	Radio Frequency
ROM	Read Only Memory
RSS	Reel Sensor Supply (Supply Reel Sensor)
RST	Reel Sensor Take-up (Take-up Reel Sensor)
R-YL	Color Difference Signal R-YL

S	
SAW	Sawtooth Signal
SC1 (0°)	3.58MHz Subcarrier Signal 1 (0-degree Phase Shifted)
SC2 (90°)	3.58MHz Subcarrier Signal 2 (90-degree Phase Shifted)
SEPA. (SEP)	Separator
S/H	Samle and Hold
SP	Standard Play or Speaker
S.REEL	Supply Reel Sensor
SRCH	Search
SRV	Servo
STABI.	Stabilizer
S.TRACK	Slow Tracking
STBY	Standby Mode
S-VHS	Super VHS
SW	Switch
SW30Hz	30Hz Head Switching Pulse
(15 or 25Hz)	(15 or 25Hz Head Switching Pulse)
SYNC	Synchronizing signal
SYS.CON	System Control

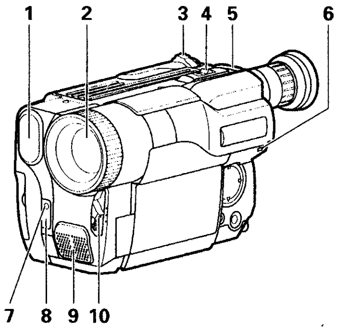
T	
T (TELE)	Telephoto Angle
TAPE +	Recording Hi-8 Quality Image on Normal Tape
TBC	Time Base Corrector
T.BRAKE	Take-up Brake
TP	Test Point
T.REEL	Take-up Reel Sensor
TRS	Transfer

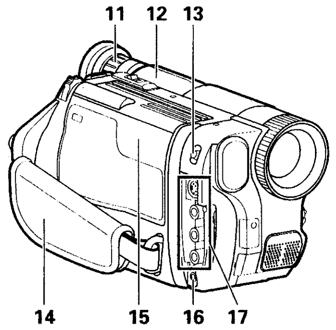
V	
V (VERT.)	Vertical
V.AGC	AGC Voltage
VCO	Voltage Controlled Oscillator
VCXO	Voltage Controlled Crystal Oscillator
VD	Vertical Drive
V.DUB	Video Dubbing
VHS	Video Home System
VOL.	Volume
VP	Voltage Pulse

W	
W (WIDE)	Wide Angle
WHD	Wide Horizontal Drive
WHT	Color Sifnal White
WHT BAL.	White Balance

Y	
Y	Luminance Signal
Y/C	Luminance/Chrominance
YEL (Ye)	Color Signal Yellow
YL	Luminance Signal (Low Component)

IDENTIFYING CONTROLS





1. Built-in DC Light (p54) (for VM-H765LE)

2. Lens Door (p24)

The lens door will open automatically when the camera/recorder is set to the camera (CAM) mode.

3. Power Zoom Control (p32)

4. Cassette Eject Switch (p18)

5. Shoulder Strap Slot (p12)

6. Charge Indicator (p13)

7. Record Indicator (p24)

8. Infrared Receiver (p24)

9. Microphone

10. CAM/OFF/VIDEO Power Switch (p24)

CAM: Set to this position to record.

VIDEO: Set to this position to play back a tape.

11. Diopter Control (p11)

To adjust the viewfinder eyepiece to suit your eyesight.

12. Electronic Viewfinder (p11)

13. DC Light Switch (p54) (for VM-H765LE)

To switch the DC light between ON, OFF and AUTO.

14. Hand Strap (p12)

15. Cassette Holder (p18)

Insert cassette here.

16. Microphone Jack (for VM-H765LE/VM-H665LE/VM-E565LE)

Connect external microphone (not supplied) here.

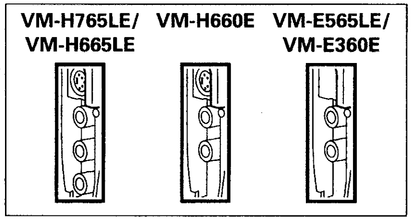
17. Audio/Video Output Jacks (Behind the jack cover) (p49)

Connect the provided AV cable from this jack to the AV input jack of your TV or VCR. The jacks on camera/recorder differ for each model as follows:

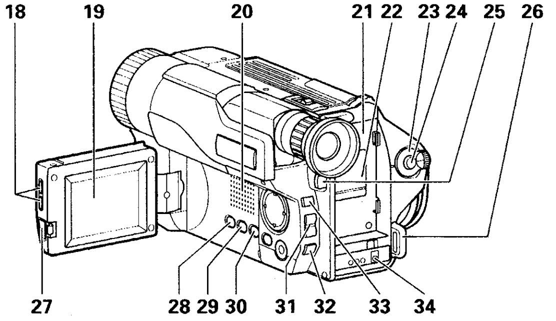
VM-H765LE/VM-H665LE has S-VIDEO jack and stereo audio output jacks.

VM-H660E has S-VIDEO jack and monaural audio output jack.

VM-E565LE/VM-E360E has monaural audio output jack.



IDENTIFYING CONTROLS



18. LCD Brightness Controls (p9) (for VM-H765LE/VM-H665LE/VM-E565LE)

19. 2.5-inch LCD Monitor (p9) (for VM-H765LE/VM-H665LE/VM-E565LE)

20. Speaker (p9) (for VM-H765LE/VM-H665LE/VM-E565LE)

21. Power Supply Attachment Section (p16)

22. Clock Battery Compartment (p8)

23. Sub Power Switch (p24)

STANDBY: Pressing the Start/Stop button will start recording.

LOCK: The camera/recorder will not enter the record mode even if the Start/Stop button is pressed.

24. Start/Stop Button (p24, 28)

This works as a recording Start/Stop button in the CAM mode and as a playback pause button in the VIDEO mode.

25. BATT. EJECT Lever (p14)

Sliding, and then holding, this switch, remove the battery from the camera/recorder.

26. Shoulder Strap Slot (p12)

27. LCD Monitor OPEN Button (p14) (for VM-H765LE/VM-H665LE/VM-E565LE)

To open the LCD monitor.

28. DATE Button (p29)

To set the date or display it.

29. TITLE Button (p43)

To select or create a title, or display one.

30. EFFECT Button (p34)

To record digitally processed image or play back picture with digital effect added.

31. FOCUS Control Buttons (p32)

CAM mode: To switch between auto focus and manual focus, or to control focus while in manual focus mode.

For VM-H765LE/VM-H665LE/VM-E565LE:

In the VIDEO mode, you can control playback volume. (See page 26)

32. BLC (Backlight Compensation) Button (p40)

When recording a subject in bright light, hold this button down to compensate for lighting on tape.

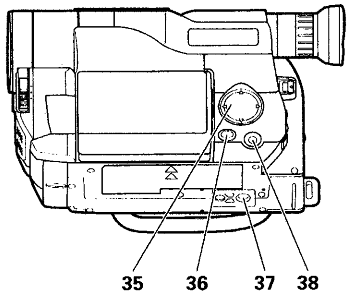
33. MENU Button (p20)

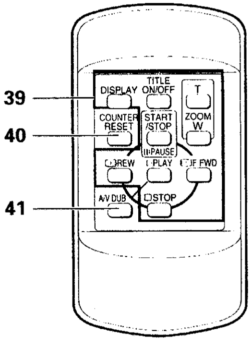
To display the menu.

34. DC IN Jack (p17)

Use this jack to power the camera/recorder from the AC adapter or from battery in your vehicle.

IDENTIFYING CONTROLS





35. Tape Transport and Menu Setting Buttons (p20, 26)

Tape Transport Buttons:

▶ PLAY: To play back tape.
◀◀ REW: To rewind tape.
■ STOP: To stop tape.
▶▶ FWD: To fast forward tape.

Menu Setting Buttons:

To select menu items and set details.

36. FADE Button (p36)

To select the desired fade mode.

37. Tripod Mounting Threaded Socket

38. PROGRAM AE Button (p39) (for VM-H765LE/VM-H665LE/VM-E565LE/VM-H660E)

To change the exposure.

REMOTE CONTROL

39. Recorder Remote Control

Same functions as the corresponding buttons on the camera/recorder.

40. COUNTER RESET Button (only on the remote control) (p48)

To reset the time counter to 0:00:00.

41. A/V DUB Button (only on the remote control) (p52)

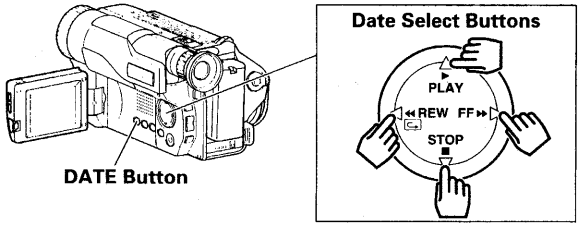
To dub audio and video.

DATE/TIME SETTING

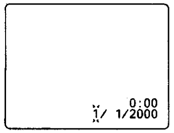
The date and time can be recorded on your tapes to act as a handy reference when viewing them at a later time. Use the following procedure to set up this display for the current date and time.

Make sure that the current time is displayed correctly before you start recording.

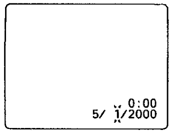
NOTE: Be sure to insert the clock battery before setting the date and time. Although the date and time can be set without the clock battery inserted, they will disappear when the battery providing power to the camera/recorder is removed.



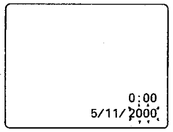
1. Slide the CAM/OFF/VIDEO switch to "CAM".
2. Press the DATE button.
   "0:00" and "1/1/2000" appears on the monitor screen and "1" flashes.



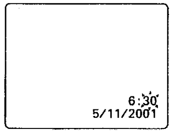
3. Press the PLAY or STOP button to select correct date. Pressing the PLAY button gives you higher numbers while the STOP button gives you lower numbers. When the correct date appears, press the FF button.



4. Press the PLAY or STOP button to select correct month. When the correct month appears, press the FF button.



5. Use the PLAY, STOP and FF buttons to select the correct year, hour and minute.



6. After setting to the correct minute, press the DATE button to change the display and start the internal clock.
   It is recommended that you press the DATE button to match the time signal.

NOTE: After the date and time are set, "◷ AUTO" appears and the camera/recorder enters the automatic date recording mode. See "DATE RECORDING" on page 30.

- **To correct date/time after starting the date/time**

1. Hold down the DATE button for at least 3 seconds: The flashing cursor will appear at the date.
2. Correct the incorrect digit by using the PLAY, STOP and FF buttons.

- **To correct date/time during programming**

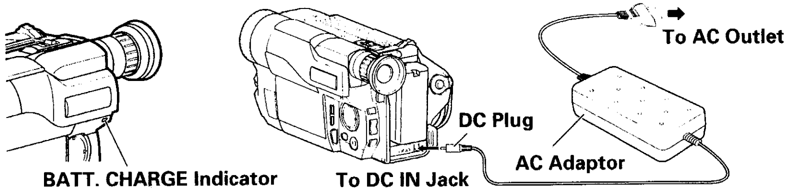
1. Press the FF button repeatedly until the digit that is incorrect flashes.
2. Correct the incorrect digit by using the PLAY, STOP and FF buttons.

CHARGING THE BATTERY

The first step is to set the battery for charging. To charge the battery, attach it to the camera/recorder, and connect the VM-ACE5E AC adaptor. Charge the battery at a temperature range of 10°C – 30°C to prevent damage to the battery.

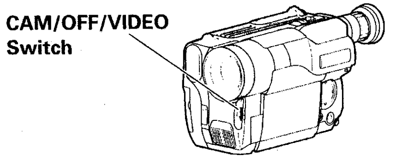
NOTES:

- This camera/recorder operates with a lithium ion battery such as VM-BPL13/VM-BPL30/VM-BPL60.
- We cannot be responsible for any malfunctions of the camera/recorder which occur when you use battery packs other than those specified.

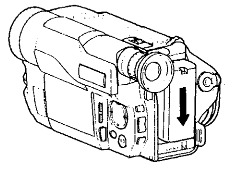


Charge the battery on a flat surface that is free of vibration.

1. Make sure the CAM/OFF/VIDEO switch is set to OFF position.



2. Attach the battery pack to the camera/recorder.
   - Place the battery on the guide platform and slide it down so that it fits into the camera/recorder.



NOTE: Always attach a battery only by the procedure described here. Attaching a battery forcibly could damage it.

3. Plug the AC adaptor power cord into an AC outlet.
4. Connect the AC adaptor DC plug to the DC IN jack of the camera/recorder. Charging will start within five seconds. During charging, the BATT. CHARGE indicator of the camera/recorder will flash or light to give you a reference of the charged level.

NOTES:

- **If the BATT. CHARGE indicator flashes once every two seconds, the battery could be defective.**
- **The BATT. CHARGE indicator will not light at all when the AC adaptor is defective.**
- You can use the battery before it is completely charged.
- When charging is complete, the BATT. CHARGE indicator on the camera/recorder will light. If the fully charged battery is removed and then re-attached, the camera/recorder will again enter the charge mode, and the BATT. CHARGE indicator will flash. It will take a few minutes for the camera/recorder to enter the charge complete status.
- Charging at low temperatures will decrease charge capacity.

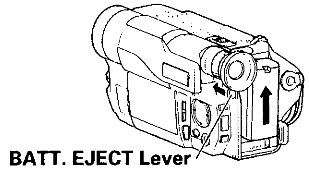
5. After charging is complete, disconnect the AC adaptor DC plug from the camera/recorder.
6. Disconnect the AC plug from the AC outlet.
7. Detach the battery from the camera/recorder.

NOTES:

- Always remove the battery from the camera/recorder after use.
- Charging is not done when the CAM/OFF/VIDEO switch of the camera/recorder is set to CAM or VIDEO. However, if recording pause continues for more than 5 minutes in the CAM mode, the camera/recorder will automatically turn off, after which charging will start. If the sub-power switch is set to LOCK, charging will take place even when the CAM/OFF/VIDEO switch is set to CAM.
- If the DC plug is disconnected when the battery is attached and the CAM/OFF/VIDEO switch is set to CAM or VIDEO, the camera/recorder will turn off once, but then automatically turn on again. Note that the battery will discharge if the camera/recorder is left as it is.

■ Removing the battery pack

Slide the BATT. EJECT lever in the direction of the arrow and hold it; then slide the battery to the upper side and remove.



■ Reference of charged level

You can know the approximate charge level of battery by observing how the BATT. CHARGE indicator of camera/recorder flashes or lights:

Charge level	BATT. CHARGE indicator
0-50% charge	Flashes once at approx. one-second intervals.
50-75% charge	Flashes twice at approx. one-second intervals.
More than 75% charge	Flashes three times at approx. one-second intervals.
Full charge	Steady light

■ Charging time

Charging \ Battery	VM-BPL13	VM-BPL30	VM-BPL60
Full charge	3h	5h 30 min.	9h 50 min.
75% charge	1h 50 min.	3h 40 min.	7h

■ Operating time

The camera/recorder operating time depends on how often you turn power on/off and use start/stop and zoom.

Continuous recording

EVF: when using the viewfinder
LCD: when using the LCD monitor

Battery	VM-BPL13	VM-BPL30	VM-BPL60
VM-H765LE			
EVF	2h 40 min	5h 55 min	12h
LCD	2h 15 min	5h	10h 20 min
VM-H665LE			
EVF	2h 45 min	6h 5 min	12h 20 min
LCD	2h 20 min	5h 15 min	10h 40 min
VM-E565LE			
EVF	2h 50 min	6h 15 min	12h 40 min
LCD	2h 25 min	5h 30 min	11h 10 min
VM-H660E			
EVF	2h 50 min	6h 15 min	12h 40 min
VM-E360E			
EVF	2h 50 min	6h 15 min	12h 40 min

Typical recording

EVF: when using the viewfinder
LCD: when using the LCD monitor

Battery	VM-BPL13	VM-BPL30	VM-BPL60
VM-H765LE			
EVF	1h 35 min	3h 30 min	7h 10 min
LCD	1h 20 min	3h	6h 10 min
VM-H665LE			
EVF	1h 40 min	3h 35 min	7h 20 min
LCD	1h 25 min	3h 5 min	6h 20 min
VM-E565LE			
EVF	1h 45 min	3h 45 min	7h 35 min
LCD	1h 30 min	3h 15 min	6h 40 min
VM-H660E			
EVF	1h 45 min	3h 45 min	7h 35 min
VM-E360E			
EVF	1h 45 min	3h 45 min	7h 35 min

Notes on the battery

- It is recommended that the battery always be left in the discharged state when not in use, and charged before you use it.
- Avoid storing a fully charged battery, and do not store it in a place where the temperature is high: this will damage the battery.

(continued on next page)

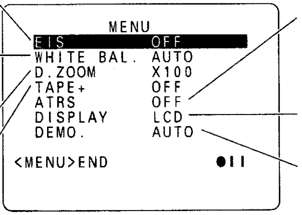
ITEMS SELECTABLE WITH MENU DISPLAYS

The items that can be selected depend on the position of CAM/OFF/VIDEO switch.

NOTE: The VM-H765LE menu displays are used for the following explanation. Some items do not appear, depending on the model.

Menu selectable in the CAM mode

When the MENU button is pressed, the following menu display will appear:



To correct camera shake (p41) (only for VM-H765LE/VM-H665LE/VM-E565LE/VM-H660E).

To lock the white balance (p40) (only for VM-H765LE/VM-H665LE/VM-E565LE).

To select the digital zoom mode (p33).

To upgrade normal tape (p23) (only for VM-H765LE/VM-H665LE/VM-H660E).

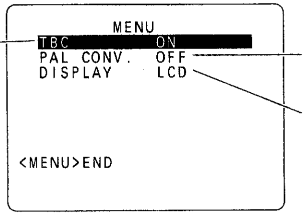
To record in optimum status to match tape being used (p23) (only for VM-H765LE/VM-H665LE/VM-H660E).

To turn the on-screen display on or off (p22).

To select the demonstration mode (p22).

Menu selectable in the VIDEO mode

Pressing the MENU button will display the following:



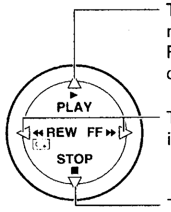
To ensure playback of stable pictures (p42).

To view NTSC tape recorded in SP mode (p53).

To turn the on-screen display on or off (p22).

How to select items and set them

1. Press the MENU button.
2. Press the PLAY or STOP button to select the desired item.
3. Use the FF or REW button to select the desired mode.
4. Press the MENU button again to determine the mode.



To select an item whose mode you wish to change. Press PLAY to move the cursor up.

To select the mode of the item you have chosen.

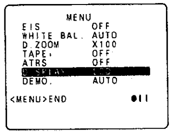
To select an item whose mode you wish to change. Press STOP to move the cursor down.

SWITCHING ON-SCREEN DISPLAY ON/OFF

Using menu selection, you can turn off the camera/recorder status display during recording and playback, and turn it on again afterwards.

NOTE for VM-H660E/VM-E360E: Since this model is not equipped with LCD monitor, "EVF" will appear instead of "LCD" for menu item "DISPLAY".

1. Set the CAM/OFF/VIDEO switch to CAM.
2. Press the MENU button.
3. Press the PLAY or STOP button to select "DISPLAY".
4. Press the REW or FF button to select the desired mode:



LCD (or EVF): Information on the tape remaining, time counter, etc. is displayed on the monitor screen.

LCD/LINE (or EVF/LINE): M is displayed beside the time counter ("Memory Feature", p48). When LCD/LINE (or EVF/LINE) is specified, you can view the information in the memory displayed on the monitor screen, which will be superimposed on the playback picture seen on the connected TV.

OFF: Information on tape remaining, time counter, etc. is not displayed.

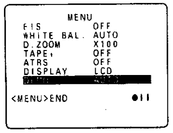
NOTES:
- The battery remaining power level will be displayed when you use a battery pack as a power supply.
- The date and recording status are displayed on the monitor screen.

5. Press the MENU button.

DEMONSTRATION MODE

Using the menu, you can switch the demonstration mode that is set in this camera/recorder.

1. Set the CAM/OFF/VIDEO switch to CAM.
2. Press the MENU button.
3. Press the PLAY or STOP button to select "DEMO.".
4. Press the REW or FF button to select the desired mode:



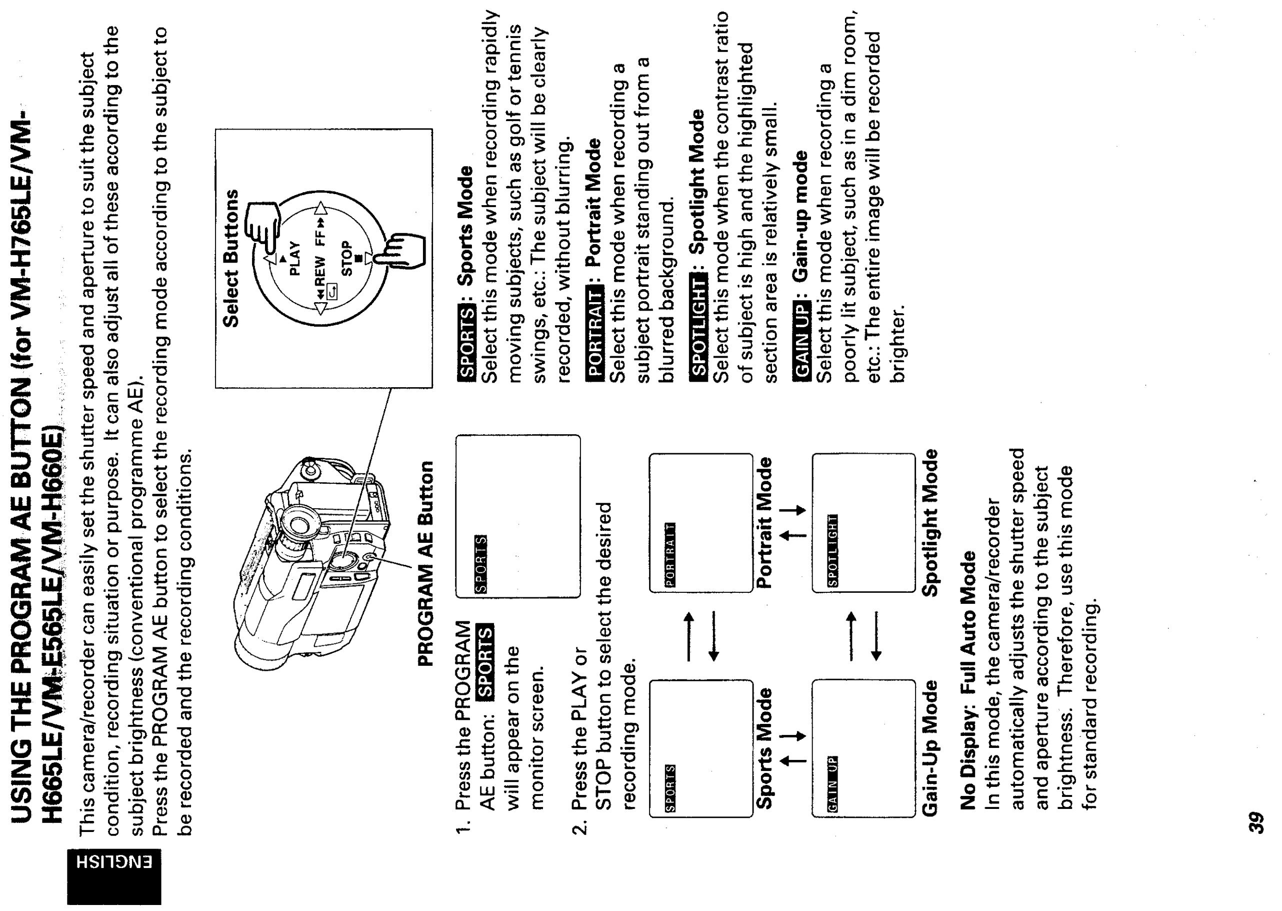
AUTO: If you leave the camera/recorder for 10 minutes without inserting a cassette when no date has been set, or the clock battery is dead, the demonstration mode will automatically engage.

START: The demonstration mode will also start after the MENU button is pressed and START is specified.

OFF: The demonstration mode is off.

5. Press the MENU button.

NOTE: The demonstration mode will continue until power is turned off, or the MENU button is pressed and "AUTO" or "OFF" is specified.



ENGLISH

USING THE PROGRAM AE BUTTON (for VM-H765LE/VM-H665LE/VM-E565LE/VM-H660E)

This camera/recorder can easily set the shutter speed and aperture to suit the subject condition, recording situation or purpose. It can also adjust all of these according to the subject brightness (conventional programme AE).
Press the PROGRAM AE button to select the recording mode according to the subject to be recorded and the recording conditions.

1. Press the PROGRAM AE button: **SPORTS** will appear on the monitor screen.
2. Press the PLAY or STOP button to select the desired recording mode.

No Display: Full Auto Mode
In this mode, the camera/recorder automatically adjusts the shutter speed and aperture according to the subject brightness. Therefore, use this mode for standard recording.

SPORTS: Sports Mode
Select this mode when recording rapidly moving subjects, such as golf or tennis swings, etc.: The subject will be clearly recorded, without blurring.

PORTRAIT: Portrait Mode
Select this mode when recording a subject portrait standing out from a blurred background.

SPOTLIGHT: Spotlight Mode
Select this mode when the contrast ratio of subject is high and the highlighted section area is relatively small.

GAIN UP: Gain-up mode
Select this mode when recording a poorly lit subject, such as in a dim room, etc.: The entire image will be recorded brighter.

39

Model of differences

	VM-H768LE(AU) VM-H768LE(SW)	VM-H765LE VM-H765LE(UK)	VM-H665LE	VM-H660E	VM-E568LE(AU) VM-E568LE(SW)
Monitor device	LCD monitor/ Viewfinder	LCD monitor/ Viewfinder	LCD monitor/ Viewfinder	Viewfinder	LCD monitor/ Viewfinder
System	Hi-8	Hi-8	Hi-8	Hi-8	Normal 8
Audio	Monaural	Stereo	Stereo	Monaural	Monaural
Built-in DC light	Yes	Yes	No	No	No
EIS function	Yes	Yes	Yes	Yes	No
Tape +	Yes	Yes	Yes	Yes	No
Programme AE	Auto/Mode select	Auto/Mode select	Auto/Mode select	Auto/Mode select	Auto

	VM-E565LE	VM-E563LE(UK)	VM-E368E(AU) VM-E368E(SW)	VM-E360E VM-E360E(UK)
Monitor device	LCD monitor/ Viewfinder	LCD monitor/ Viewfinder	Viewfinder	Viewfinder
System	Normal 8	Normal 8	Normal 8	Normal 8
Audio	Monaural	Monaural	Monaural	Monaural
Built-in DC light	No	No	No	No
EIS function	Yes	No	No	No
Tape +	No	No	No	No
Programme AE	Auto/Mode select	Auto/Mode select	Auto	Auto

CHAPTER 2 DISASSEMBLY

1. BEFORE STARTING DISASSEMBLY

(1) Dismantle and reassemble the mechanism in loading stop status, except for the following components:
- Cassette Lid
- Top Cover
- Parts on the UH mechanism

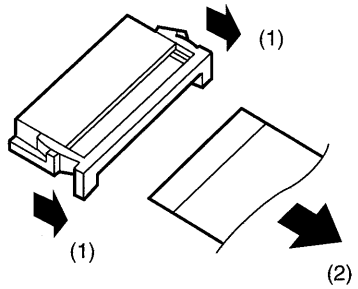
Note: After dismantling or resembling the cassette lid or top cover, return the mechanism to loading stop status.

(2) For manually operating the mechanism (unloading or loading), refer to: "How to Operate the Mechanism Manually".

(3) Dismantle each component according to "1.1 Disassembly Procedure".

(4) For reassembly, perform the reverse procedure to disassembly when not otherwise specified.

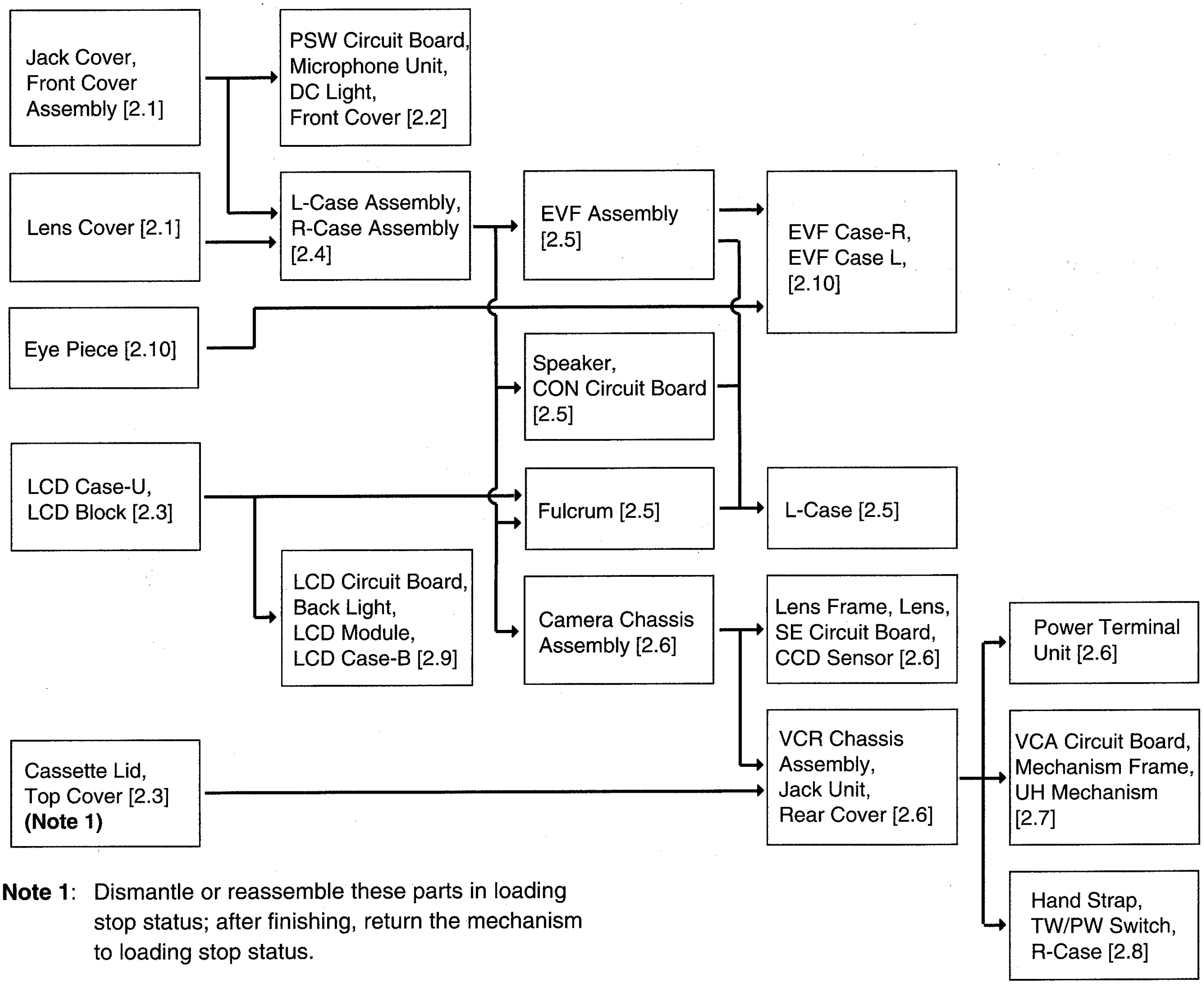
(5) Disconnect flat cables from connectors by the procedure shown in Fig. 1-1. Since many circuit boards in the camera/recorder are connected by in-board connectors, be sure to follow DISASSEMBLY when removing the circuit boards.



(1) Release the lock of the connector on the left and right simultaneously.
(2) Pull out the flat cable.

Fig. 1-1

1.1 Disassembly Procedure


Jack Cover, Front Cover Assembly [2.1]
PSW Circuit Board, Microphone Unit, DC Light, Front Cover [2.2]
Lens Cover [2.1]
L-Case Assembly, R-Case Assembly [2.4]
EVF Assembly [2.5]
EVF Case-R, EVF Case L, [2.10]
Eye Piece [2.10]
Speaker, CON Circuit Board [2.5]
LCD Case-U, LCD Block [2.3]
Fulcrum [2.5]
L-Case [2.5]
LCD Circuit Board, Back Light, LCD Module, LCD Case-B [2.9]
Camera Chassis Assembly [2.6]
Lens Frame, Lens, SE Circuit Board, CCD Sensor [2.6]
Power Terminal Unit [2.6]
VCR Chassis Assembly, Jack Unit, Rear Cover [2.6]
VCA Circuit Board, Mechanism Frame, UH Mechanism [2.7]
Cassette Lid, Top Cover [2.3] (Note 1)
Hand Strap, TW/PW Switch, R-Case [2.8]

Note 1: Dismantle or reassemble these parts in loading stop status; after finishing, return the mechanism to loading stop status.

2. CASES AND CIRCUIT BOARDS REMOVAL

2.1 Jack Cover, Front Cover Assembly, Lens Cover (Fig. 2-1)

Cautions:
Be careful not to damage the cables of the microphone.

Reinstallation procedure and caution:
The O-ring must be installed in the position shown in Fig. 2-1.

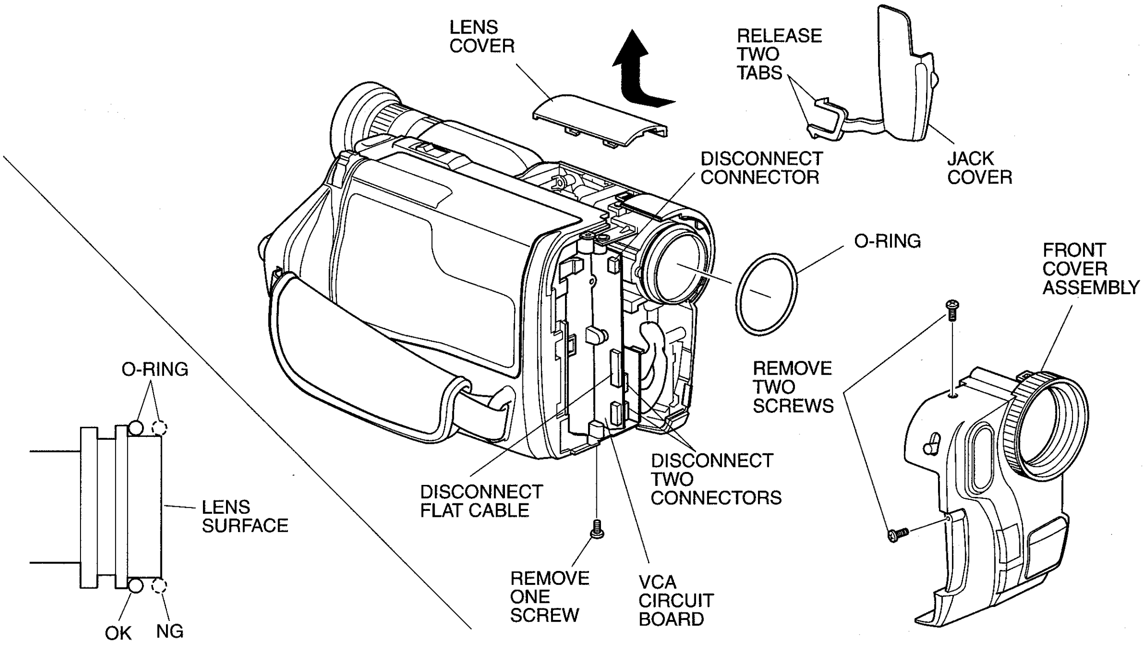

LENS COVER
RELEASE TWO TABS
JACK COVER
DISCONNECT CONNECTOR
O-RING
FRONT COVER ASSEMBLY
REMOVE TWO SCREWS
O-RING
LENS SURFACE
OK
NG
DISCONNECT FLAT CABLE
DISCONNECT TWO CONNECTORS
REMOVE ONE SCREW
VCA CIRCUIT BOARD

Fig. 2-1

2.2 PSW Circuit Board, Microphone Unit, DC Light, Front Cover (Fig. 2-2)

Note: Some models are not equipped with the DC light.

Reinstallation procedure and caution:
Take care with the orientation of the microphone when reinstalling it: The red wire is for the left side; the white lead is for the right side.

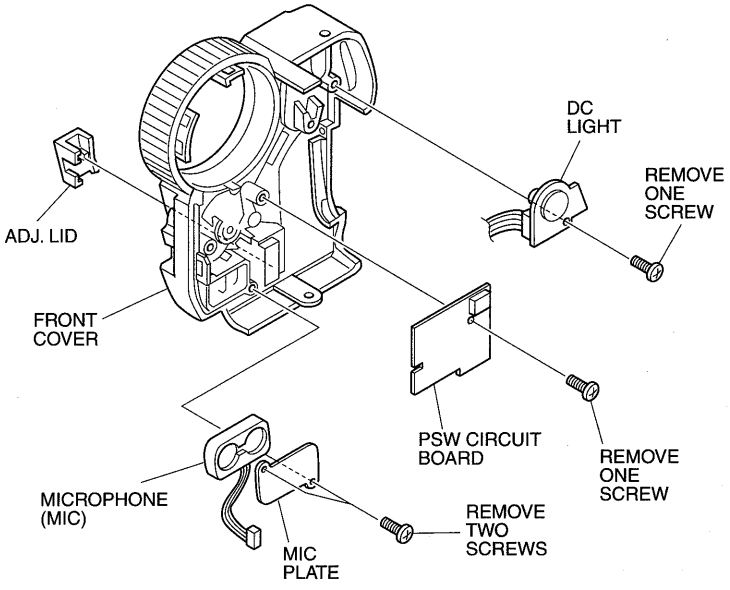

DC LIGHT
REMOVE ONE SCREW
ADJ. LID
FRONT COVER
PSW CIRCUIT BOARD
REMOVE ONE SCREW
MICROPHONE (MIC)
REMOVE TWO SCREWS
MIC PLATE

Fig. 2-2

2.3 LCD Case-U[Except for TYPE 660, 368, 360], LCD Block [Except for TYPE 660, 368, 360], Cassette Lid, Top Cover (Figs. 2-3-1, 2-3-2, 2-3-3)

Cautions:

1. Dismantle and reassemble only the cassette lid and top cover in loading stop status. After work is completed, return the mechanism to loading stop status.
2. Be careful that the LCD screen is not damaged or smudged. (If dirt adheres to it, use a soft cloth to wipe it off.)
3. Handle the LCD module and backlight with extreme care.

■ **Advise of Top Cover Removal**

Insert a flat-bladed screwdriver between the top cover and sub chassis, and push section (B) of the plate spring in the direction of arrow (C), to remove the top cover in the direction of the arrow. (See Fig. 2-3-3)

Reinstallation procedure and caution:

To install the cassette lid, first engage sections (A) with the cassette holder.

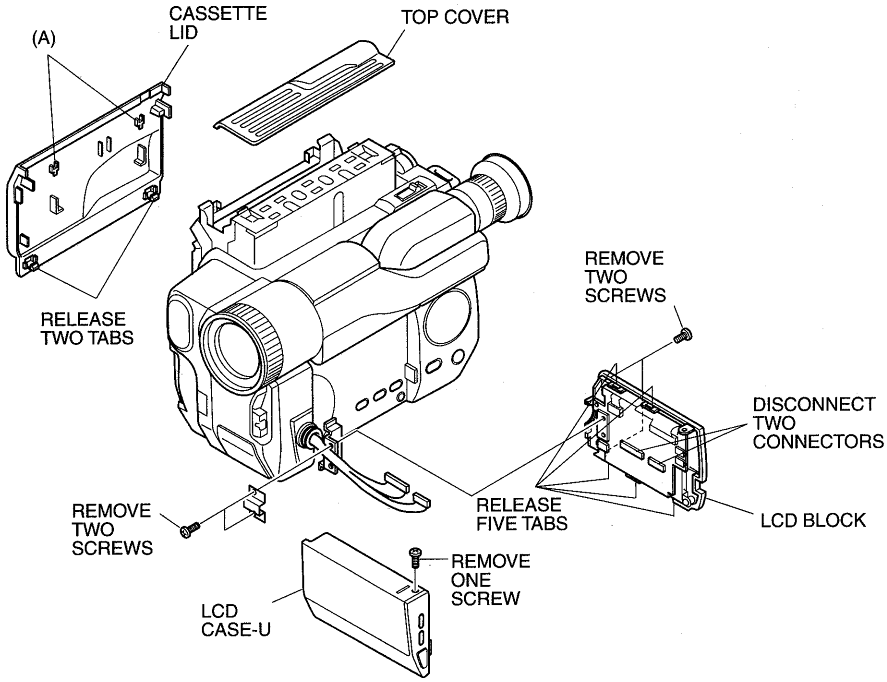

CASSETTE LID
(A)
TOP COVER
REMOVE TWO SCREWS
RELEASE TWO TABS
DISCONNECT TWO CONNECTORS
REMOVE TWO SCREWS
RELEASE FIVE TABS
LCD BLOCK
REMOVE ONE SCREW
LCD CASE-U

Fig. 2-3-1 [Except for TYPE 660, 368, 360]

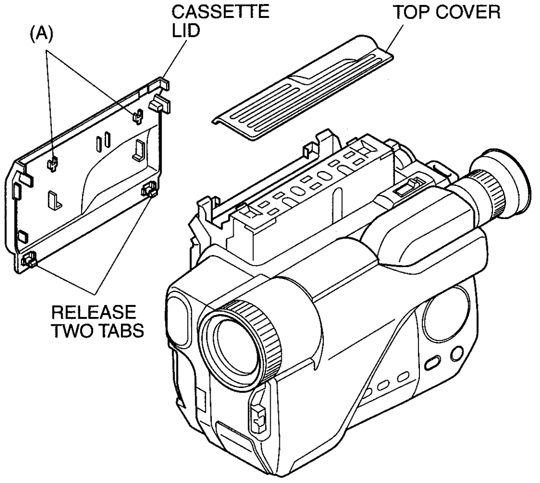

CASSETTE LID
(A)
TOP COVER
RELEASE TWO TABS

Fig. 2-3-2 [For TYPE 660, 368, 360]

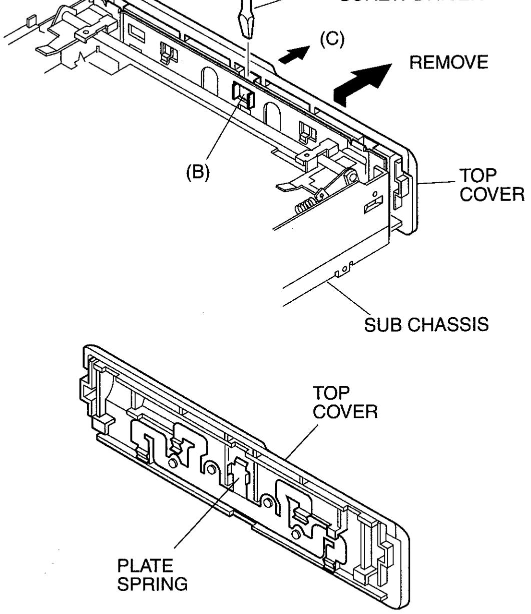

FLAT-BLADED SCREW DRIVER
(C)
REMOVE
(B)
TOP COVER
SUB CHASSIS
TOP COVER
PLATE SPRING

Fig. 2-3-3

2.4 L-Case Assembly, R-Case Assembly (Figs. 2-4-1, 2-4-2)

Caution:
Be careful so as not to damage the connectors (PG951 and PG731) between the VCA and CON circuit boards.

Reinstallation procedure and caution:
Connect connectors PG951 and PG731 securely.

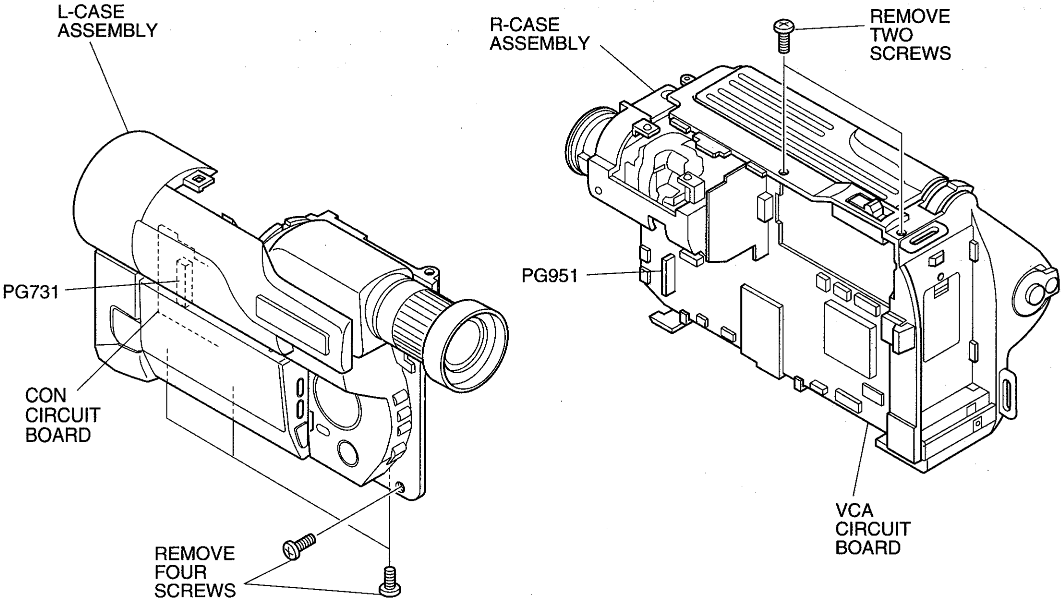

L-CASE ASSEMBLY
R-CASE ASSEMBLY
REMOVE TWO SCREWS
PG731
PG951
CON CIRCUIT BOARD
VCA CIRCUIT BOARD
REMOVE FOUR SCREWS

Fig. 2-4-1 [Except for TYPE 660, 368, 360]

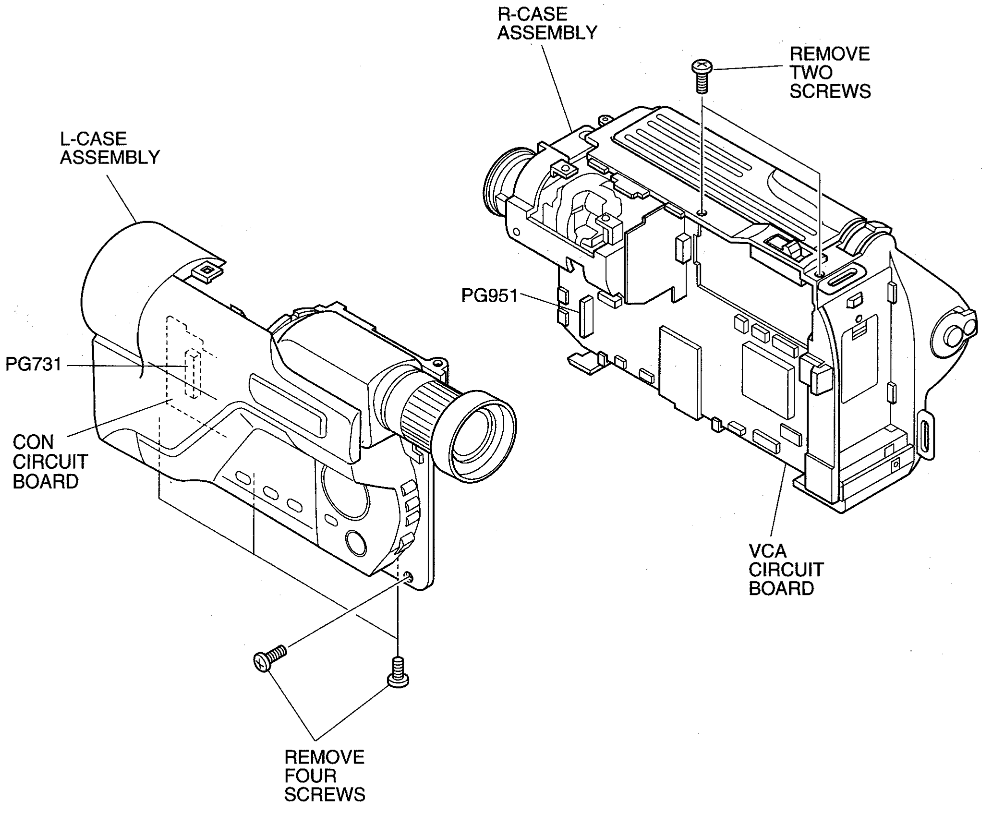

R-CASE ASSEMBLY
REMOVE TWO SCREWS
L-CASE ASSEMBLY
PG951
PG731
CON CIRCUIT BOARD
VCA CIRCUIT BOARD
REMOVE FOUR SCREWS

Fig. 2-4-2 [For TYPE 660, 368, 360]

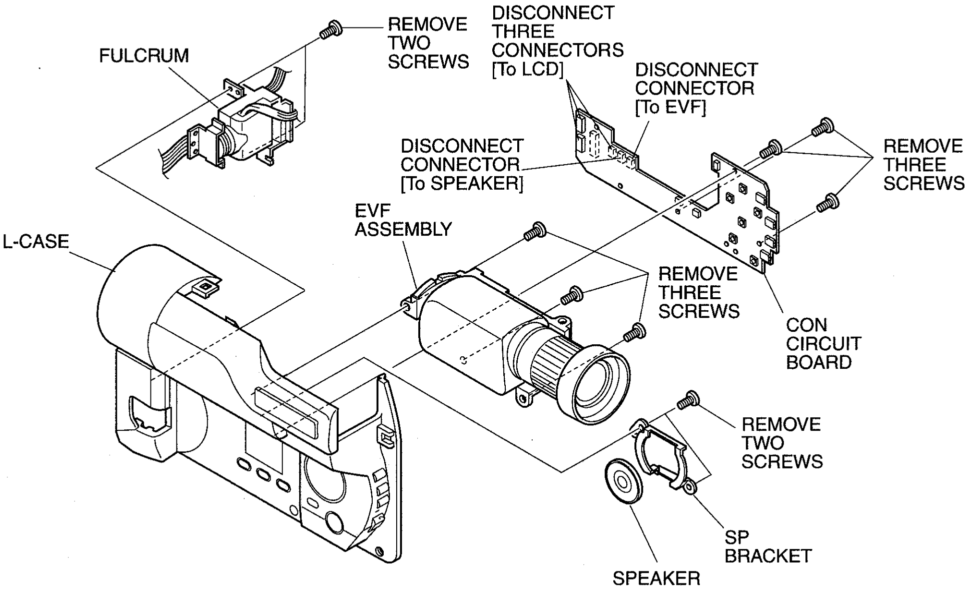
2.5 Electronic Viewfinder (EVF) Assembly, Speaker [Except for TYPE 660, 368, 360], CON Circuit Board, Fulcrum [Except for TYPE 660, 368, 360], L-Case (Figs. 2-5-1, 2-5-2, 2-5-3)

Cautions:

Be careful not to damage the LCD Open/Close switch on the CON circuit board.

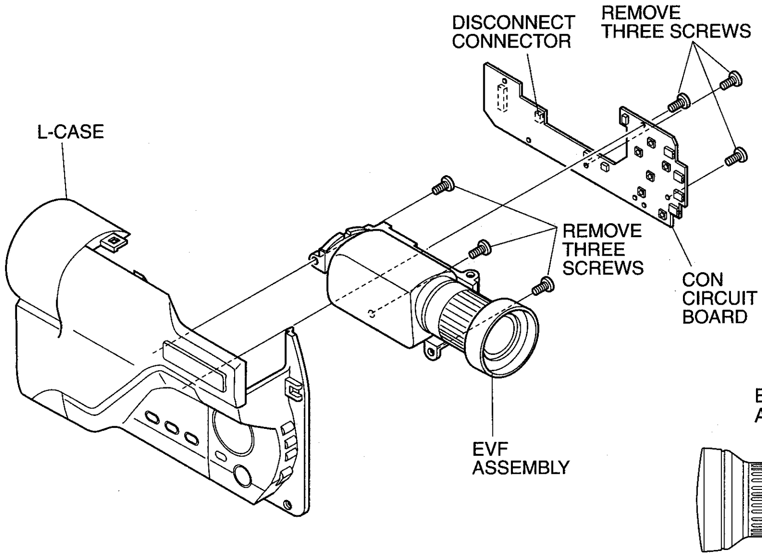
Reinstallation procedure and caution:

When reinstalling the EVF assembly, speaker, CON circuit board and fulcrum, lay out each cable as shown in Fig. 2-5-3.



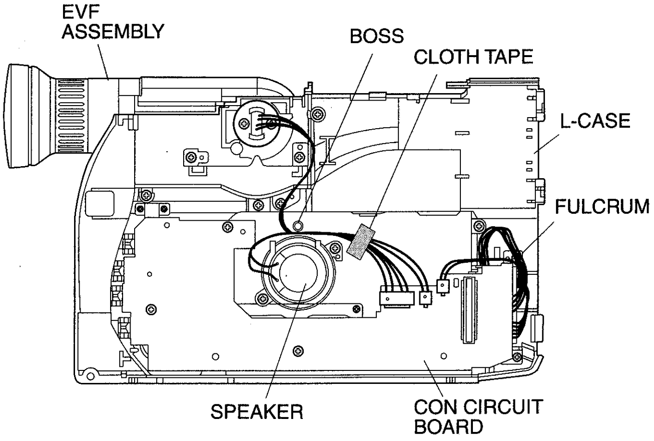
REMOVE TWO SCREWS
DISCONNECT THREE CONNECTORS [To LCD]
FULCRUM
DISCONNECT CONNECTOR [To EVF]
REMOVE THREE SCREWS
DISCONNECT CONNECTOR [To SPEAKER]
EVF ASSEMBLY
L-CASE
REMOVE THREE SCREWS
CON CIRCUIT BOARD
REMOVE TWO SCREWS
SP BRACKET
SPEAKER

Fig. 2-5-1 [Except for TYPE 660, 368, 360]



DISCONNECT CONNECTOR
REMOVE THREE SCREWS
L-CASE
REMOVE THREE SCREWS
CON CIRCUIT BOARD
EVF ASSEMBLY

Fig. 2-5-2 [For TYPE 660, 368, 360]



EVF ASSEMBLY
BOSS
CLOTH TAPE
L-CASE
FULCRUM
SPEAKER
CON CIRCUIT BOARD

Fig. 2-5-3

2.6 Camera Chassis Assembly (Lens Frame, Lens, SE Circuit Board, CCD Sensor), VCR Chassis Assembly, Jack Unit, Rear Cover, Power Terminal Unit (Fig. 2-6)

Cautions:

1. Be careful so as not to damage the connectors (PG201 and PG1001) between the VCA and SE circuit boards.
2. Be careful so as not to damage the connectors between the VCA circuit board (PG0001) and rear cover (power terminal unit).
3. Be careful not to damage the crystal filter and CCD sensor.

Reinstallation procedure and caution:

1. Connect connectors PG201 and PG1001 securely.
2. Connect connectors PG0001 and rear cover (power terminal unit) securely.
3. The crystal filter is non-directional.
4. Fit in the CCD sensor parallel to the SE circuit board, fix it with screws, and then solder it.

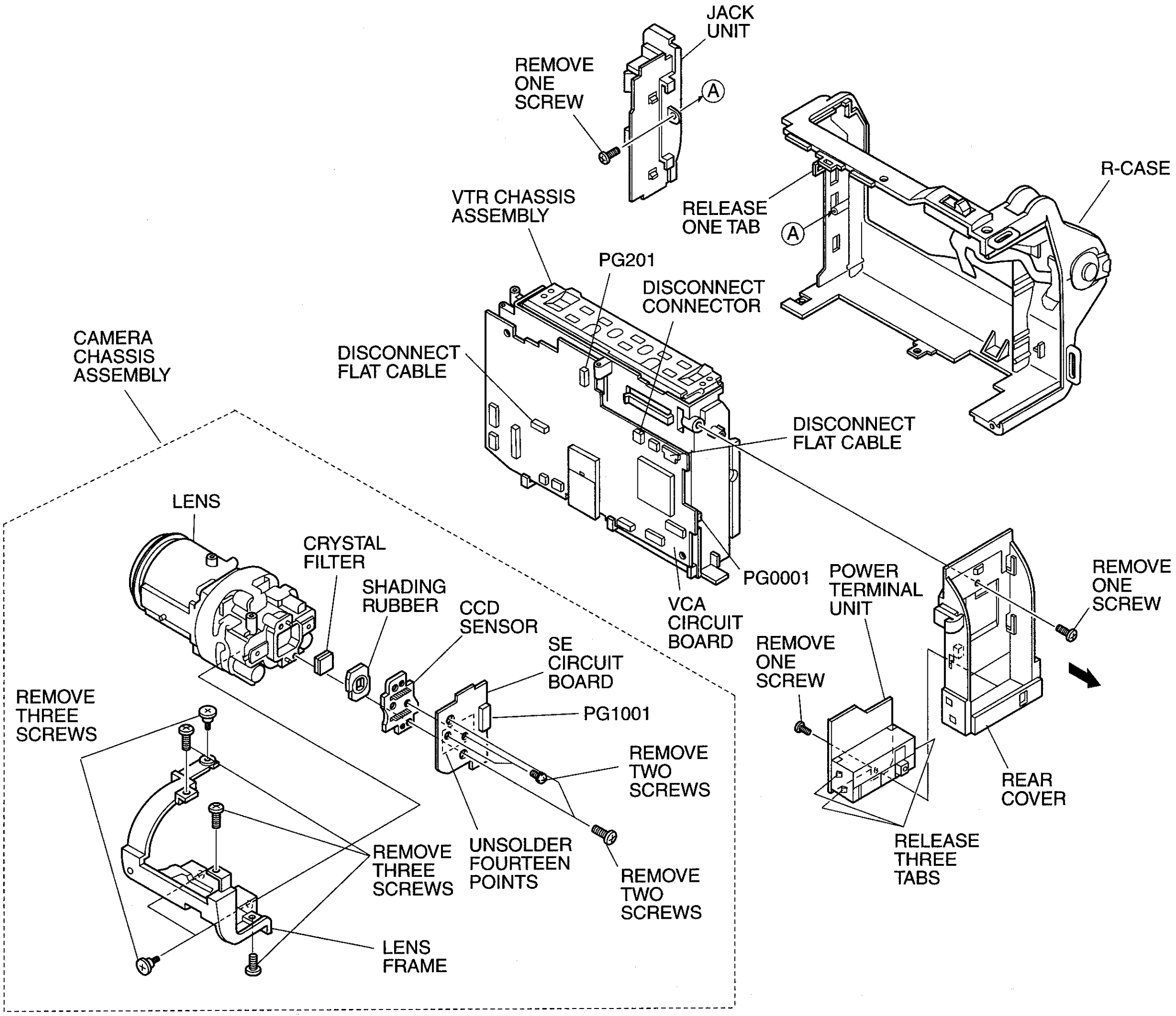

JACK UNIT
REMOVE ONE SCREW
Ⓐ
R-CASE
VTR CHASSIS ASSEMBLY
RELEASE ONE TAB
Ⓐ
PG201
DISCONNECT CONNECTOR
CAMERA CHASSIS ASSEMBLY
DISCONNECT FLAT CABLE
DISCONNECT FLAT CABLE
LENS
CRYSTAL FILTER
SHADING RUBBER
CCD SENSOR
SE CIRCUIT BOARD
PG0001
VCA CIRCUIT BOARD
POWER TERMINAL UNIT
REMOVE ONE SCREW
REMOVE ONE SCREW
REMOVE THREE SCREWS
PG1001
REMOVE TWO SCREWS
REAR COVER
REMOVE THREE SCREWS
UNSOLDER FOURTEEN POINTS
REMOVE TWO SCREWS
RELEASE THREE TABS
LENS FRAME

Fig. 2-6

2.7 VCA Circuit Board, Meacanism Frame, UH Mechanism (Fig. 2-7)

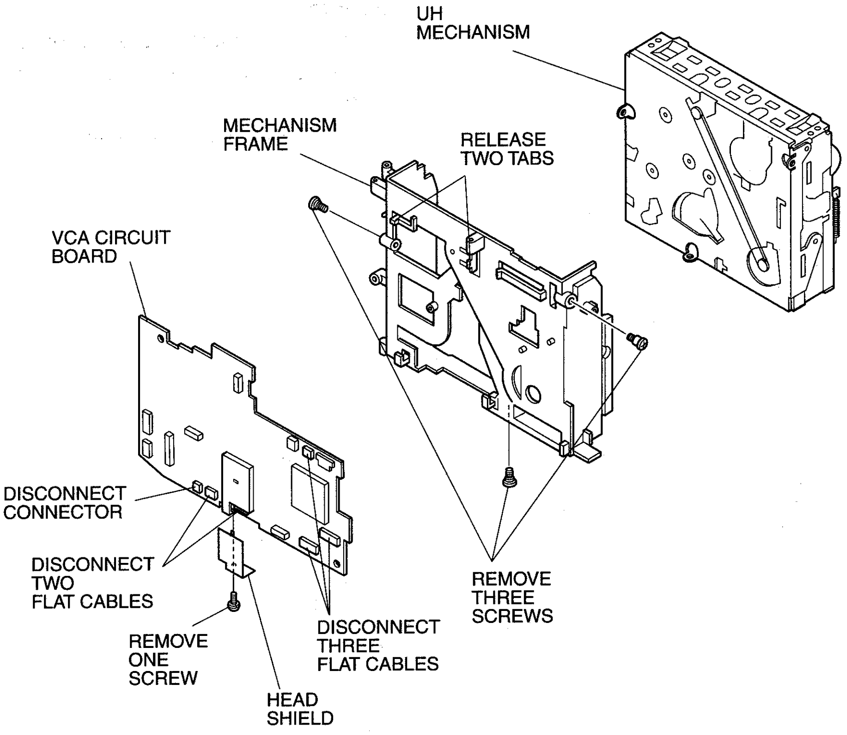

UH MECHANISM
MECHANISM FRAME
RELEASE TWO TABS
VCA CIRCUIT BOARD
DISCONNECT CONNECTOR
DISCONNECT TWO FLAT CABLES
REMOVE ONE SCREW
HEAD SHIELD
DISCONNECT THREE FLAT CABLES
REMOVE THREE SCREWS

Fig. 2-7

2.8 Hand Strap, TW/PW Switch, R-Case (Fig. 2-8)

Cautions:
Be careful not to damage the flat cable of the TW/PW switch.

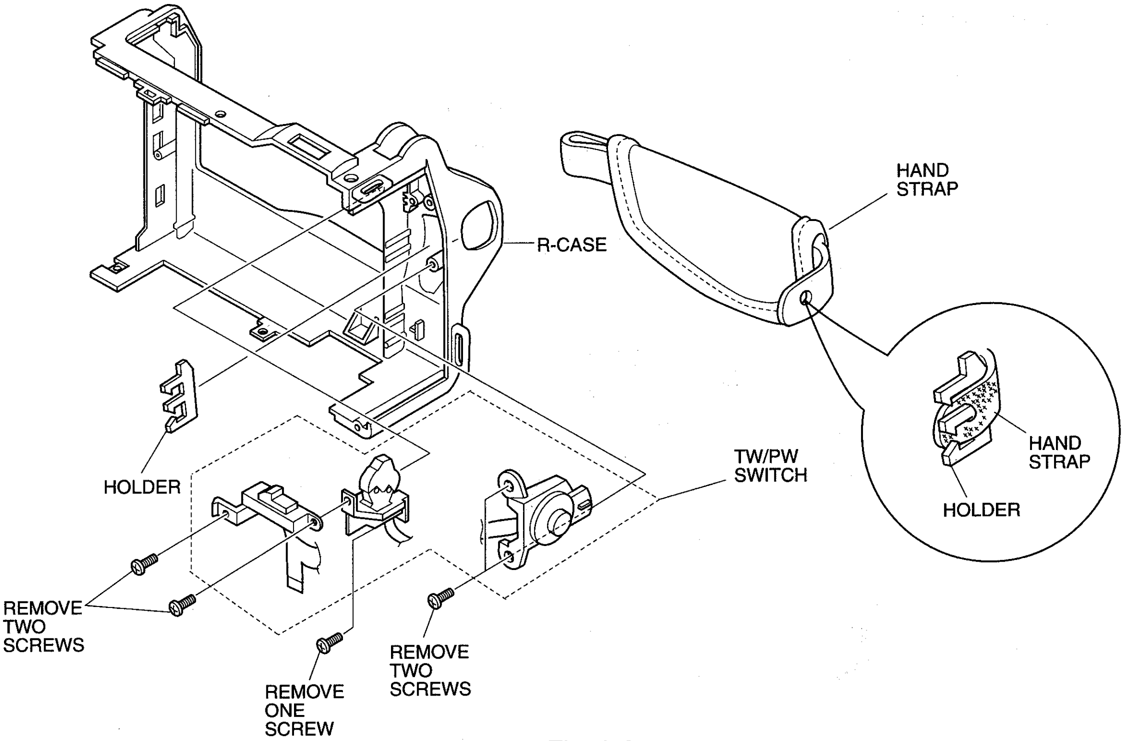

HAND STRAP
R-CASE
HOLDER
TW/PW SWITCH
HAND STRAP
HOLDER
REMOVE TWO SCREWS
REMOVE ONE SCREW
REMOVE TWO SCREWS

Fig. 2-8

2.9 LCD Circuit Borad, Back Light, LCD Module, LCD Case-B (Fig. 2-9) [Except for TYPE 660, 368, 360]

Cautions:

1. Be careful that the LCD screen is not damaged or smudged. (If dirt adheres to it, use a soft cloth to wipe it off.)
2. Handle the LCD module and backlight with extreme care.

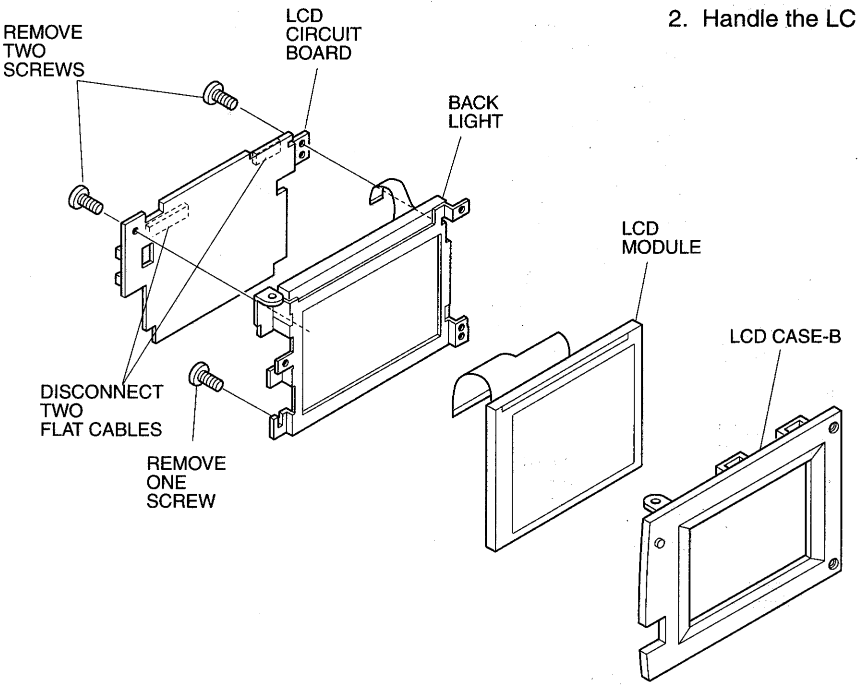

REMOVE TWO SCREWS
LCD CIRCUIT BOARD
BACK LIGHT
LCD MODULE
LCD CASE-B
DISCONNECT TWO FLAT CABLES
REMOVE ONE SCREW

Fig. 2-9 [Except for TYPE 660, 368, 360]

2.10 EVF Case-R, EVF Case-L, Eye Piece (Fig. 2-10)

Cautions:

1. Be careful not to damage the CRT.

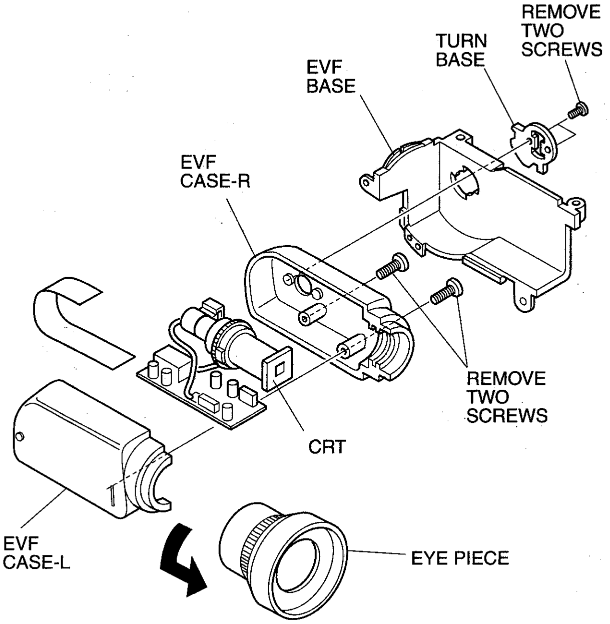

REMOVE TWO SCREWS
TURN BASE
EVF BASE
EVF CASE-R
REMOVE TWO SCREWS
CRT
EVF CASE-L
EYE PIECE

Fig. 2-10

3. HOW TO OPERATE THE MECHANISM MANUALLY

CAUTION :

Perform this procedure for emergency only when normal loading or unloading is not possible because the electrical circuits or loading motor is defective.

(1) Remove the r-case assembly. (See Fig. 2-5)
(2) Disconnect connector (CN604) from PG604 on the VCA circuit board, and supply 4V DC to CN604 (directly to the loading motor). (See Fig. 3-1)
Connecting CN604 brown wire (+) and red wire (-) results in unloading.
Connecting CN604 red wire (+) and brown wire (-) results in loading.

Note: To unload the mechanism with a tape inserted, manually turn the capstan motor simultaneously to take up the tape.

If loading or unloading does not occur even when 4V DC is directly supplied to the loading motor, perform the following procedure:

(3) Remove the camera chassis assembly and rear unit. (See Fig. 2-7)

Note: Note that it is difficult to remove the rear unit.

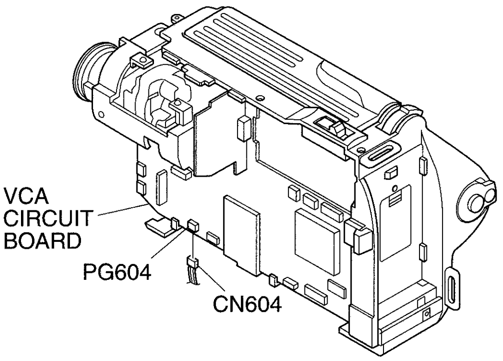


Fig. 3-1

(4) Disconnect 3 flat cables. (See Fig. 3-2)
(5) Disconnect connector. (See Fig. 3-2)
(6) Remove 1 screw holding the head shield. (See Fig.3-2)
(7) Disconnect 2 flat cables. (See Fig. 3-2)
(8) Remove 3 screws. (See Fig. 3-2)
(9) Remove the UH mechanism in the direction of the arrow from the r-case. (See Fig.3-2)
(10) Remove the cassette lid and top cover. (See Fig. 2-3)

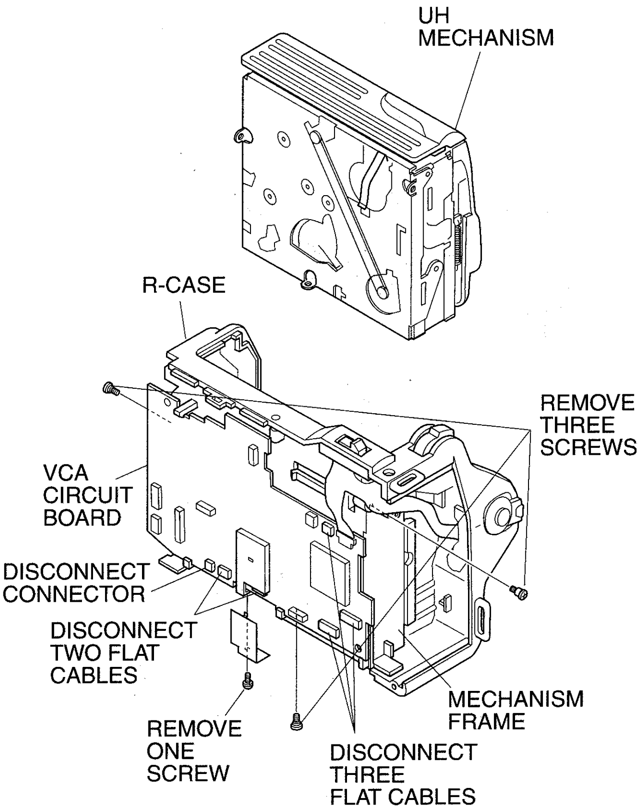


Fig. 3-2

(11) Release 2 tabs and pull out the loading motor from the loading motor holder. (See Fig. 3-3)

Note: The above removal is different from normal removal. In normal circumstances, remove the loading motor assembled with the loading motor holder. (The loading motor and loading motor holder comprise an assembly.)

(12) Turn over the mechanism. (See Fig. 3-3)

Note: Do not turn over with the idler cover removed.

(13) Use a flat-bladed screwdriver, etc. to turn cam gear (A) or (B). (See Fig. 3-3)
Turning it in the direction of the arrow will unload the mechanism, and turning it in the opposite direction to the arrow will load the mechanism.

Notes: 1. Be careful not to damage the cam gears.
2. To unload the mechanism with a tape inserted, manually turn the capstan motor simultaneously to take up the tape.

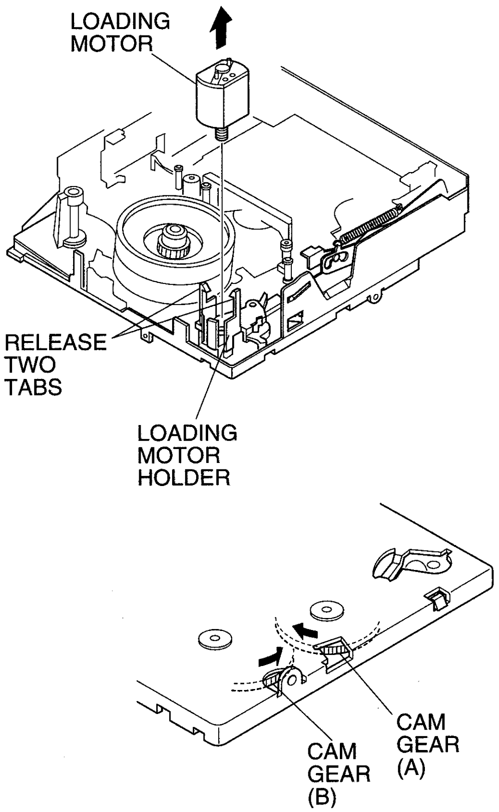

LOADING MOTOR
RELEASE TWO TABS
LOADING MOTOR HOLDER
CAM GEAR (A)
CAM GEAR (B)

Fig. 3-3

Memo

CHAPTER 3 ELECTRIC CIRCUIT ADJUSTMANT

Trademark

MS-DOS is a registered trademark of Microsoft Corporation.

Abbreviation

MAP: Digital adjustment program.
DSP: Digital signal processor

1. CONNECTION FOR ADJUSTMENT

1.1 Before Starting Adjustment

(1) Set the date. (If the camera/recorder is left for several minutes with no date set after power is turned on, it will automatically enter the demo mode.)

Notes: 1. Perform the electric circuit adjustments using a personal computer.

2. It is not necessary to remove cases for electric circuit adjustments.
3. The ODC DC cord is a jig which is to be used in the Power Shut Off Level (ODC) Adjustment. For other adjustments, the AC adapter can be used as a power supply.

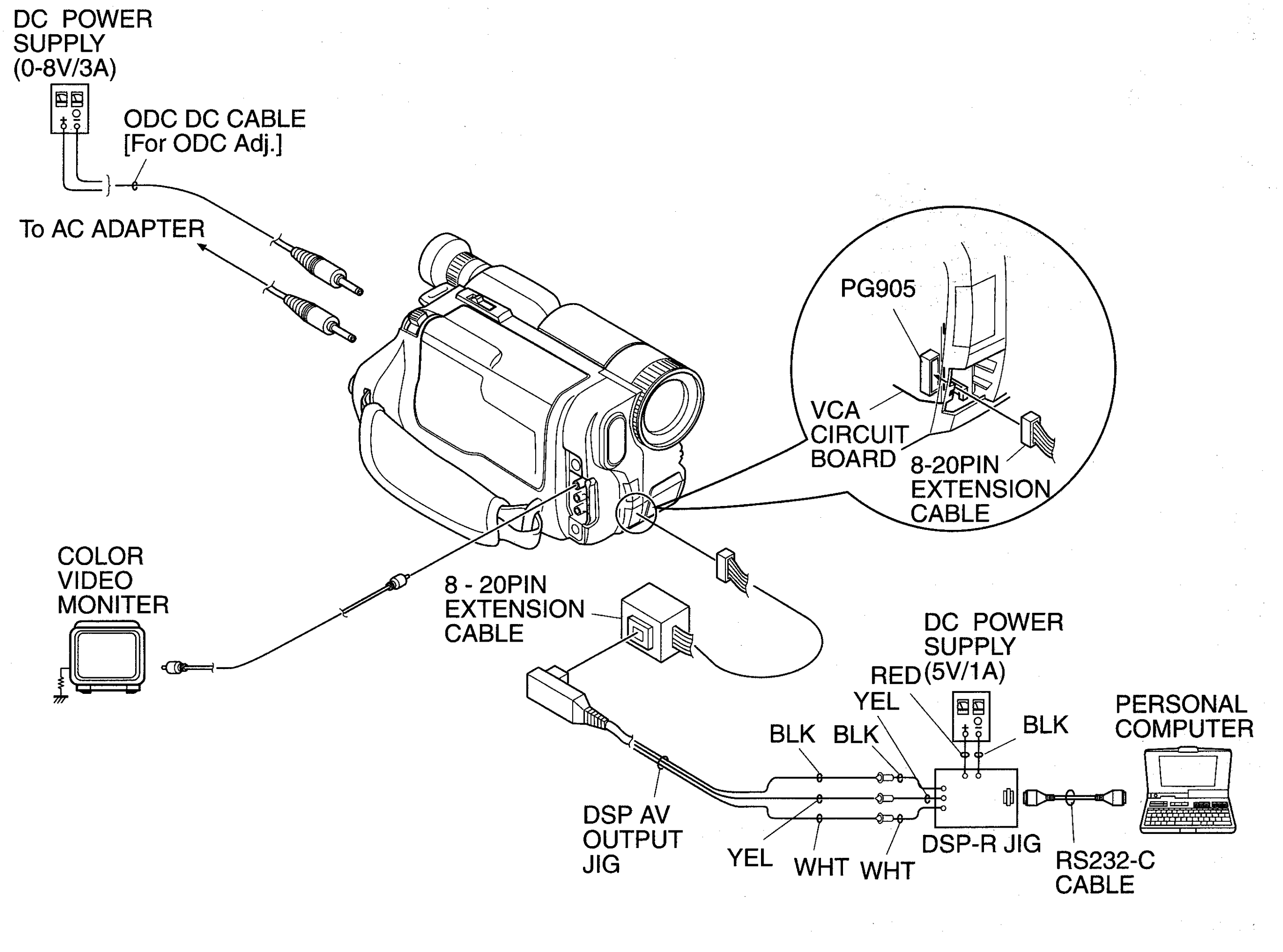

DC POWER SUPPLY (0-8V/3A)
ODC DC CABLE [For ODC Adj.]
To AC ADAPTER
PG905
VCA CIRCUIT BOARD
8-20PIN EXTENSION CABLE
COLOR VIDEO MONITER
8 - 20PIN EXTENSION CABLE
DC POWER SUPPLY (5V/1A)
RED
YEL
BLK
BLK
BLK
PERSONAL COMPUTER
DSP AV OUTPUT JIG
YEL
WHT
WHT
DSP-R JIG
RS232-C CABLE

Fig. 1-1 Connection for adjustment

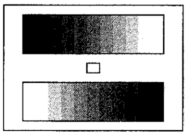
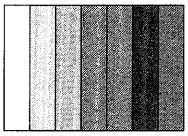
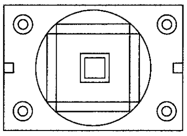
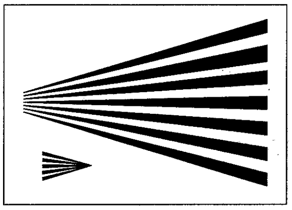
2. CAMERA SECTION ADJUSTMENT

2.1 Test Equipment Necessary for Adjustment

Oscilloscope (dual trace) [& Vectorscope]
Digital Voltmeter (DVM)
Color Video Monitor
Adjustment Floppy Disk
Personal Computer
Personal Computer 9-pin or 25-pin (RS232C) Cable
DSP-R Jig
DSP AV Output Jig
8 - 20 Pin Extension Cable
Light Box (3100 K)
Light Balancing Filter C12
DC Power Supply (DC5V/1A)
AC Adapter or
  DC power supply (DC7V/3A) and ODC DC code

2.2 List of Charts for Camera Adjustment

Table 2-1

Gray Scale Chart 	Color Bar Chart 	Resolution Chart 
Backfocus Adjustmant Chart		

2.3 Adjustment Conditions

1. Check that the VCR section has been adjusted correctly before adjusting the camera section.
2. Use a light box with minimum flickering.
   Control the color temperature of the light box strictly.
3. When using the video out jack to perform adjustment, be sure to terminate the video out jack with 75 ohms.
4. Place the light box approx. 30cm away from the camera (lens surface) when otherwise not specified.
5. Point the camera at the chart to full the video period when otherwise not specified.
6. Use the 10:1 probe of the oscilloscope when otherwise not specified.
7. When "Trigger the oscilloscope internally" is specified, set the time base of the oscilloscope to 10µs/div.

2.4 Preset Positions of Switches and Controls During Adjustment

Note: Some models do not have switches (modes) marked "ß".

CAM/OFF/VIDEO switch	"CAM" position
SUB POWER switch	"STANDBY" position
DC LIGHT switch [ß]	"OFF" position
DATE	Not display mode
TITLE	Not display mode
EFFECT	OFF mode
BLC	OFF mode
MENU	Not display
EIS on the MENU [ß]	OFF mode
PROGRAM AE [ß]	AUTO mode
FOCUS	Autofocus mode
FADE	OFF mode

Caution

1. Since the adjustment program is subject to change for improvements, computer displays may be different from those shown in this manual. In such cases, follow the computer displays for adjustment.
2. The computer displays may be different from those shown in this manual, depending on the destination of models and whether or not certain functions are provided. In such cases, follow the computer displays for adjustment.

2.5 Check After Replacing Major Components in the Camera Section

After replacing major components, perform adjustments, referring to the table below.
The following table shows the minimum adjustments required after major components are replaced.
The table below may not apply when several components are replaced, depending on the symptom of the defect.

Caution: When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.6.3 Initial Setting by Model" then perform all the camera section and system control/servo circuits adjustments.

Table 3-2

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS									
		SE Circuit Board	VCA Circuit Board	IC1001	IC0202	IC1104	IC1105	IC1201	IC1401 IC1402 IC1403	Lens Block	
INITIAL SETTING BY MODEL			●				●				
DIGITAL ADJUSTMENT PROCEDURE											
(1)	Auto Iris Control Adjustment	●	●	●		●	●	●		●	
(2)	White Balance Adjustment	●	●	●			●				
(3)	Chroma Gain Adjustment	●	●	●			●				
AUTOFOCUS ADJUSTMENT PROCEDURE											
(1)	Zoom Trace Adjustment	●	●				●			●	
(2)	AF Noise Level Adjustment	●	●				●			●	
STABILIZER ADJUSTMENT PROCEDURE [Except for TYPE 568, 563 (For ModelEE), 368, 360]		●	●				●		●		
SPOT NOISE ADJUSTMENT PROCEDURE		●	●				●				

2.6 Adjustment Procedure

Notes:
1. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.
2. The following describes an example of the instructions of the personal computer and the menu display; they are different depending on the personal computer manufacturer and model. Refer to the instruction manual of personal computer.
3. When the error message appears during adjustment, refer to "4. Error Message". If a key is pressed after an error message appears, the ADJUSTMENT MENU is restored.

2.6.1 Connections for Adjustment

Connect the camera/recorder, DSP jig, personal computer, power supply, etc. as shown in Fig. 1-1.
Check that the camera/recorder is turned on.

2.6.2 How to Start the MAP

(1) Turn the personal computer on and start the MS-DOS system.

Note: Refer to the instruction manual of the personal computer for how to start computer.

(2) Load the adjustment floppy disk in to disk drive A and press **A:** [ENTER]. (Display 2-1)

(3) Press **MAP_IBM** [SPACE] **1** [ENTER]. (Display 2-2)

Note: When you use a personal computer with two serial interface connectors and connect the DSP jig to serial interface connector 2, press MAP_IBM 2.

(4) Select the number accodding to the model. (Display 2-3)
If [ESC] (escape) is pressed, the display before the MAP starts (MS-DOS) is restored.

Notes: 1. If the required model is not found, press the **P** key and select the model from the next screen.
2. If you select number without a model name by mistake, the message shown in "MESSAGE WHEN OPERATED BY MISTAKE" will appear in the computer's display (Display 2-4).
Press any key to return the display to MODEL SELECT dispaly.

(5) Press **Y** key. (Display 2-5)
If **N** key is pressed, the computer's display returns to MODEL SELECT display.

(6) Refer to display 2-6.

2.6.3 Initial Setting by Model

Before Starting Initial Setting

1. This item describes how to initialize the EEP ROM. Be sure to perform this item after replacing EEP ROM or the VCA circuit board.
   When other components are replaced, normally, it is not necessary to initialize the EEP ROM.
2. Be sure to perform the following adjustments after completing the initial setting.
   - 2.6.4 Digital Adjustment Procedure
   - 2.6.5 Autofocus Adjustment Procedure
   - 2.6.6 Stabilizer Adjustment Procedure [Except for TYPE 568, 563 (For Model EE), 368, 360]
   - 2.6.7 Spot Noise Adjustment Procedure
   - 2.7 Color LCD Monitor Adjustment} [Except for TYPE 660, 368, 360]
   - 3.5 System Control/Servo Circuits Adjustment

(1) Start the MAP.

(2) Refer to display 2-6.

(3) Press **A** key.

(4) Refer to display 3-1.

(5) Press **Y** key to start.

Note: Press **N** to return to MAIN MENU display.

(6) Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

Display & Figs

Display 2-1

```
C>A:
A>
```

Display 2-2

```
C>
A>MAP_IBM 1
```

Display 2-3

```
**********************************************
               MODEL SELECT
**********************************************
[1]            xxxxxxx
[2]            xxxxxxx
[3]            xxxxxxx
[4]            xxxxxxx
[5]            xxxxxxx
[P]            NEXT SELECTION
[ESC]          END
   Please select the type of the set.
     Press [1] - [5] or [P] or [ESC]
```

Display 2-4

MESSAGE WHEN OPERATED BY MISTAKE

```
  CAN NOT FIND THE DATA FILE
     **** PRESS ANY KEY ****
```

Display 2-5

```
  Selected model is × × × × × × ×
       Are you sure ? (Y/N)
```

Display 2-6

MAIN MENU

```
**********************************************
  MANUAL ADJUSTMENT PROGRAM
**********************************************
[A]            DATA INITIALIZE
[B]            ADJUSTMENT
[C]            VCR ADJUSTMENT
[D]            AUTO FOCUS
[E]            STABILIZER
[F]            SPOT NOISE
[G]            LCD
[ESC]          END
   Please select [A] - [G] or [ESC]
```

Display 3-1

```
        « DATA WRITING »
  START TO SEND DATA.   (Y/N)
```

2.6.4 Digital Adjustment Procedure

Before Starting Adjstment
When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.6.3 Initial Setting By Model" then perform all the digital adjustments.

(1) Start the MAP.

(2) Refer to display 2-6.

(3) Press **B** key.

(4) Refer to display 4-1.

(5) Select the number of the required adjustment.

Notes: 1. If [ESC] (escape) is pressed, the computer's display returns toMAIN MENU display.
2. To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

(1) Auto Iris Control Adjustment

Purpose:
To set the iris control data.

Incompleted Phenomenon:
The picture becomes too bright.
The picture becomes too dark.

Condition:
Point the camera at the light box without a chart to full the screen (at wide-angle).

Procedure:

1) Refer to display 4-1.

2) Press **1** key.
Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

3) Refer to display 4-2.

4) Press any key to return to ADJUSTMENT MENU display.

5) Turn the power off for 5 seconds and then on again.

(2) White Balance Adjustment

Purpose:
To set white balance under the color temperature which becomes a reference for the auto white balance circuit.

Incompleted Phenomenon:
Color of the subject is different from that of the picture.
A white subject is not seen as white.

Test Point:
Video Out Jack

Condition:
Attach a C12 filter.
Point at a gray scale chart (at wide-angle).

Procedure:

1) Refer to display 4-1.

2) Press **2** key.

3) Refer to display 4-3.

4) *Model HA:*
Press **0** (ZERO) **A** to input the data.
Model EA:
Press **0** (ZERO) **C** to input the data.
Model HE:
Press **0** (ZERO) **9** to input the data.
Model EE:
Press **0** (ZERO) **D** to input the data.

5) Press [Enter] key, and the display changes as follows.

Display & Figs

Display 2-6
MAIN MENU

```
*********************************************
 MANUAL ADJUSTMENT PROGRAM
*********************************************
 [A]          DATA INITIALIZE
 [B]          ADJUSTMENT
 [C]          VCR ADJUSTMENT
 [D]          AUTO FOCUS
 [E]          STABILIZER
 [F]          SPOT NOISE
 [G]          LCD
 [ESC]        END
    Please select [A] - [G] or [ESC]
```

Display 4-1
ADJUSTMENT MENU

```
*********************************************
                ADJUSTMENT
*********************************************
 [1]    AUTO IRIS CONTROL
 [2]    WHITE BALANCE
 [3]    CHROMA GAIN
 [ESC]  RETURN TO MAIN MENU
    Please select [1]- [3] or [ESC]
```

Display 4-2

```
        ADJUSTMENT FINISHED
          PRESS ANY KEY
```

Display 4-3

```
 « WHITE BALANCE ADJUSTMENT »
  INPUT DATA OF OFFSET
                 FOR R-B --> 00
```

Display 4-4

```
 « WHITE BALANCE ADJUSTMENT »
  INPUT DATA OF OFFSET
               FOR Mg-G  --> 00
```

6) Refer to display 4-4.

7) *Model HA:*
   Press **0** (ZERO) **A** to input the data.
   Model EA:
   Press **0** (ZERO) **C** to input the data.
   Model HE:
   Press **0** (ZERO) **B** to input the data.
   Model EE:
   Press **0** (ZERO) **D** to input the data.

8) Press [Enter] key.
   Perform adjustment according to the computer displayhereafter.
   See "4. Error Messages" if an error message appears on the computer display.

(3) Chroma Gain Adjustment (Figs. 2-1, 2-2, 2-3)

Purpose:
To set the color saturation under the reference color temperature.

Incompleted Phenomenon:
Color of the picture is denser than that of the subject.
Color of the picture is lighter than that of the subject.

Equipment/Jig:
Oscilloscope (Vectorscope)

Test Point:
Video Out Jack

Condition:
Attach a C12 filter.
Point at a color bar chart.

Procedure:

1) Refer to display 4-1.

2) Press **3** key.

3) Rerer to dispaly 4-5.

4) *WhenUsing an Oscilloscope:*
   Press the **U** and **D** keys to set the red level to around 470mVp-p.
   Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the red level is 470mV ± 20mVp-p. (Fig. 2-1)
   When Using a Vectorscope:
   Press the **U** and **D** keys to set the red vector to around 170% of the burst.
   Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the red vector is 170% ± 5%. (Figs. 2-2, 2-3)

5) Press [Enter] key, and the display changes as 4-6 and 4-7.

6) Press any key to return to ADJUSTMENT MENU display.

Display & Figs

Display 4-1

ADJUSTMENT MENU

```
*********************************************
              ADJUSTMENT
*********************************************
  [1]    AUTO IRIS CONTROL
  [2]    WHITE BALANCE
  [3]    CHROMA GAIN
  [ESC]  RETURN TO MAIN MENU
     Please select [1]- [3] or [ESC]
```

Display 4-4

```
 « WHITE BALANCE ADJUSTMENT »
  INPUT DATA OF OFFSET
                  FOR Mg-G  --> 00
```

Display 4-5

```
« ADJUSTMENT OF CHROMA GAIN »
       ROUGH ADJUSTMENT
[U]        CHROMA GAIN UP
[D]        CHROMA GAIN DOWN
       FINE ADJUSTMENT
[Ctrl] + [U]CHROMA GAIN UP
[Ctrl] + [D]CHROMA GAIN DOWN
[ENTER]  SAVE & RETURN TO MENU
[ESC]    QUIT
```

Display 4-6

```
« ADJUSTMENT OF CHROMA GAIN »
  DATA WRITING INTO EEPROM.
```

Display 4-7

```
« ADJUSTMENT OF CHROMA GAIN »
    ADJUSTMENT FINISHED.
      PRESS ANY KEY.
```

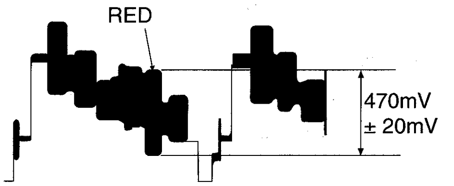


Fig. 2-1

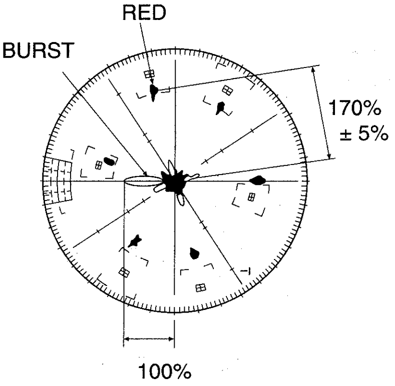


Fig. 2-2 [Model HA, EA]

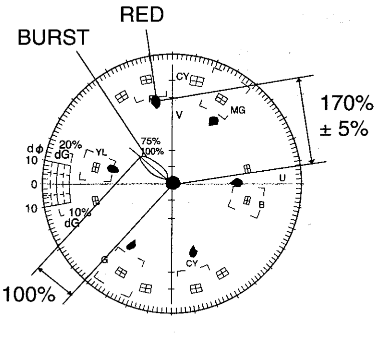


Fig. 2-3 [Model HE, EE]

2.6.5 Autofocus Adjustment Procedure

Before Starting Adjustment
Be sure to perform this adjustment after replacing or initializing the lens block or VCA circuit board (EEPROM).

(1) Start the MAP.

(2) Refer to display 2-6.

(3) Press **D** key.

(4) Refer to display 5-1.

(5) Select the number of the required adjustment.

Note: To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

(1) Zoom Trace Adjustment

Purpose:
To set the out-of-focus correction level during zooming.
Incompleted Phenomenon:
Focus is lost during zooming.
Equipment/Jig:
Color Video Monitor
Backfocus Chart
Test Point:
Video Out Jack
Condition:
Point at the backfocus chart, 1500 ± 5 mm away from the lens surface.
Light the chart with 200-400 lx.
Caution When Adjustment:
1) Measure the distance between the chart and lens surface precisely.
2) Place the chart as parallel as possible to the lens surface.
3) The backfocus chart should always be at the center of the monitor screen when the zoom is set to the wide-angle and telephoto ends.
4) The zoom trace adjustment procedure is completed within 2 minutes after it is selected.
5) Do not place any obstruction between the lens and chart during adjustment.

Procedure:

1) Refer todisplay 5-1.

2) Press **1** key.
Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

(2) AF Noise Level Adjustment

Purpose:
To set the noise level in the autofocus circuit.
Incompleted Phenomenon:
It takes time until a subject is brought into focus.
Correct focus is not obtained.
Equipment/Jig:
Color Video Monitor
Test Point:
Video Out Jack
Condition:
Set the focus to AUTO.
Point at a light box without a chart inserted at a distance of up to 10cm.
Caution When Adjustment:
1) Place the light box as parallel as possible to the lens surface.
2) The AF noise level adjustment procedure will be completed within thirty seconds after it is selected.

Procedure:

1) Refer todisplay 5-1.

2) Press **2** key.
Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

Display & Figs

Display 2-6
MAIN MENU

```
***********************************************
 MANUAL ADJUSTMENT PROGRAM
***********************************************
 [A]          DATA INITIALIZE
 [B]          ADJUSTMENT
 [C]          VCR ADJUSTMENT
 [D]          AUTO FOCUS
 [E]          STABILIZER
 [F]          SPOT NOISE
 [G]          LCD
 [ESC]        END
    Please select [A] - [G] or [ESC]
```

Display 5-1
AF ADJ. MENU

```
***********************************************
    AUTO FOCUS ADJUSTMENT
***********************************************
[1]    ADJUSTMENT OF ZOOM/
                 FOCUS TRACKING
[2]    ADJUSTMENT OF
                 AF NOISE LEVEL
[ESC] RETURN TO MENU
     Please select [1], [2] or [ESC]
```

2.6.6 Stabilizer Adjustment Procedure
[Except for TYPE 568, 563 (For Model EE), 368, 360]

Before Starting Adjustment

1. Be sure to perform this adjustment after replacing or initializing the SE circuit board and VCA circuit board (EEPROM).
2. This item describes how to rewrite the stabilizer data. The average of the stabilizer data will be written.

(1) Start the MAP.

(2) Refetr to display 2-6.

(3) Press **E** key.

(4) Refer to display 6-1.

(5) Press **Y** key.

(6) Refer to display 6-2.

(7) The stabilizer data is rewritten automatically.

(8) Press any key to return to MAIN MENU display.

Note: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

2.6.7 Spot Noise Adjustment Procedure

Before Starting Adjustment

1. The spot noise is identified as the fine white noise that appears when the lens cap is attached after the power is turn on.
2. Perform this adjustment only for products with which spot noise occurs. (However, there is no problem even if products free from spot noise are adjusted.)
3. After replacing the CCD image sensor or VCA circuit board (EEPROM), check whether or not spot noise occurs and then proceed with adjustment.

(1) Start the MAP.

(2) Refer to display 2-6.

(3) Cap the lens.

(4) Connect the color video monitor to video out.

(5) *Except for TYPE 568, 563 (For Model EE), 368, 360:*
Press **F** key.
For TYPE 568, 563 (For Model EE), 368, 360:
Press **E** key.

Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

Note: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

Display & Figs

Display 2-6

MAIN MENU

```
**********************************************
 MANUAL ADJUSTMENT PROGRAM
**********************************************
 [A]        DATA INITIALIZE
 [B]        ADJUSTMENT
 [C]        VCR ADJUSTMENT
 [D]        AUTO FOCUS
 [E]        STABILIZER
 [F]        SPOT NOISE
 [G]        LCD
 [ESC]      END
   Please select [A] - [G] or [ESC]
```

Display 6-1

```
      « DATA WRITING »
 START TO SEND DATA  (Y/N)
```

Display 6-2

```
 FINISHED WRITING DATA.
     PRESS ANY KEY.
```

2.7 Color LCD Monitor Adjustment [Except for TYPE 660, 368, 360]

2.7.1 Adjustment Procedure

Before Starting Adjustment

1. Be sure to perform this adjustment after replacing the LCD unit, components on the LCD circuit board or the VCA circuit board (EEPROM), or initializing the EEPROM.
2. Picture appears on the LCD monitor when the monitor is open. Perform adjustment with the LCD monitor open (SW733 on the CON board set to OFF).

(1) Start the MAP.

(2) Refer to display 2-6.

(3) *Except for TYPE 568, 563 (For Model EE)*
Press **G** key.
For TYPE 568, 563 (For Model EE)
Press **F** key.

(4) Refer to display 7-1.

(5) Select the number of the required adjustment.

Notes: 1. To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.
2. When an adjustment item is selected from the color LCD adjustment menu, the adjustment mode will be automatically set, and the signal necessary for adjustment will be supplied from the system control μP.

(1) Flicker Adjustment

Purpose:
To minimize flickering on the LCD screen:

Incompleted Phenomenon:
Flickering is present in the picture.

Condition:
Set the CAM/OFF/VIDEO switch to VIDEO position.
Load the alignment tape and it the playback (color bar section).

Procedure:

1) Refer to display 7-1.

2) Press **1** key.

3) Refer to display 7-2.

4) Press the **U** and **D** keys until the picture on the LCD screen is optimal quality.

5) After setting is completed, press the [RETURN (ENTER)] key.

Display & Figs

Display 2-6

MAIN MENU

```
**********************************************
 MANUAL ADJUSTMENT PROGRAM
**********************************************
 [A]          DATA INITIALIZE
 [B]          ADJUSTMENT
 [C]          VCR ADJUSTMENT
 [D]          AUTO FOCUS
 [E]          STABILIZER
 [F]          SPOT NOISE
 [G]          LCD
 [ESC]        END
   Please select [A] - [G] or [ESC]
```

Display 7-1

LCD ADJ. MENU

```
**********************************************
            LCD ADJUSTMENT
**********************************************
  [1]         FLICKER
  [ESC]       RETURN TO MENU
     Please select [1] or [ESC]
```

Display 7-2

```
**********************************************
                XXXXXXX
**********************************************
[U]         UP
[D]         DOWN
[RETURN] SAVE & RETURN TO MENU
[ESC]       RETURN TO MENU
  Please select  [U], [D],
                [RETURN] or [ESC]
```

3. VCR SECTION ADJUSTMENT

3.1 Test Equipment and Alignment Tapes Necessary for Adjustment

Test Equipment, Jigs etc.

Digital Voltmeter (DVM)
Color Video Monitor
DC Power Supply (DC 0 - 8V/3A)
DC Power Supply (DC 5V/1A)
Adjustment Floppy Disk
Personal Computer
Personal Computer 9-pin or 25-pin (RS232C) Cable
DSP-R Jig
DSP AV Output Jig
8 - 20 Pin Extension Cable
ODC DC Cord

Alignment Tape

Alignment Tape
Blank Tape

3.2 Adjustment Condition

1. Check that the camera, LCD monitor and EVF sections has been adjusted correctly before adjusting the VCR section.
2. Connect this unit, a power supply and a color video monitor as shown in Fig. 1-1.
3. Use the 10:1 probe of the oscilloscope when other not specified.
4. When "Record mode" is specified, load a blank tape and set the 8mm video camera/recorder to the record mode by the following procedure.
   1) Set the CAM/OFF/VIDEO switch to the CAM position.
   2) Set the SUB POWER switch to STANDBY position.
   3) Press the REC START/STOP button on the unit (or REC START/STOP button on the remote control).
5. Ground of test equipment: Pre-Amp Shield (GND).

3.3 Preset Positions of Switches and Controls During Adjustment

CAM/OFF/VIDEO switch	"VIDEO" position
TITLE	Not Display mode
PAL CONV. on the MENU	OFF mode

3.4 Check After Replacing Major Components in the VCR Section

After replacing major components, perform checks, referring to the table below.
The following table shows the minimum adjustments required after major components are placed.
The table below may not apply when several components are replaced, depending on the symptom of the defect.

Caution: After replacing the parts, check each adjustment. If you find the items necessary to be adjusted, remove the corresponding laser trimming resistors and replace them with variable resistors for adjustment.

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS		
		VCA Circuit Board	Cylinder	IC0901
SYSTEM CONTROL/SERVO CIRCUITS ADJUSTMENT				
(1)	Power Shut Off level Adjustment	●		●
(2)	Head Switching Point Adjustment	●	●	●

3.5 System Control/Servo Circuits Adjustment

Before Starting Adjustment

1. System control/servo circuits adjustment also needs a personal computer. Connect the camera/recorder, jigs, power supply, etc. in the same way as in camera section adjustment.
2. Be sure to perform this adjustment after replaceing or initializing the EEP ROM and VCA circuit board.
3. When an error message appears during adjustment, refer to "4. Error Massage".
4. If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU display.
5. To complete adjustment, pres to [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jigs.

(1) Start the MAP.

(2) Refer to display 2-6.

(3) Press **C** key.

(4) Refer to display 8-1.

(5) Select the number of the required adjustment.

(1) Power Shut Off Level (ODC: Over Discharge Control) Adjustment

Purpose:

To set the minimum voltage required to operate the camera/recorder.

Incompleted Phenomenon:

The usable time of the battery becomes short.
The camera/recorder doesn't operate normally.

Equipment/Jig:

DVM
DC Power Supply (0 - 8V)
Blank Tape
ODC DC Cord

Condition:

Connect the camera, LCD monitor and EVF sections.
Supply power (8.0V ± 0.5V) to DC IN via ODC DC cord.
LCD monitor open. (LCD ON)
Cap the lens.
Load the brank tape.

Procedure:

1) Refer to display 8-1.
2) Press **1** key.
3) Refer to display 8-2.
4) Set the voltage of the power supply to 5.8V ± 0.05V.
5) Press any key.
6) Refer to display 8-3.
7) Press any key to return to VCR ADJ. MENU display.

(2) Head Switching Point Adjustment

Note: Be sure to perform this adjustment after replacing the cylinder assembly and VCA circuit board.

Purpose:

To set the switching point of the video heads during playback.

Incompleted Phenomenon:

Vertical jitter occurs.
Switching noise appears across the bottom of the monitor screen.

Equipment/Jig:

Alignment Tape

Condition:

Playback the alignment tape.

Procedure:

1) Refer to display 8-1.
2) Press **2** key.
3) Refer to displays 8-4, 8-5 and 8-6.
4) Press any key to return to VCR ADJ. MENU display.
5) Turn the power off.

Display & Figs

Display 2-6

MAIN MENU

```
**********************************************
 MANUAL ADJUSTMENT PROGRAM
**********************************************
 [A]          DATA INITIALIZE
 [B]          ADJUSTMENT
 [C]          VCR ADJUSTMENT
 [D]          AUTO FOCUS
 [E]          STABILIZER
 [F]          SPOT NOISE
 [G]          LCD
 [ESC]        END
    Please select [A] - [G] or [ESC]
```

Display 8-1

VCR ADJ. MENU

```
**********************************************
          VCR ADJUSTMENT
**********************************************
[1]   ADJUSTMENT OF ODC
[2]   ADJUSTMENT OF
              SWITCHING POINT
[ESC] RETURN TO MAIN MENU
     Please select [1], [2] or [ESC]
```

Display 8-2

```
 « SET UP OF ODC
         ADJUSTMENT STARTED »
 PRESET POSITION OF
      'CAMERA/OFF/VCR' SWITCH
          'VCR' POSITION
SET POWER SOURCE AT 5.8 (+/- 0.05)
```

Display 8-3

```
 « SETUP OF ODC
       ADJUSTMENT COMPLETED »
  « ODC ADJUSTMENT STARTED »
 « ODC ADJUSTMENT COMPLETED »
         PRESS ANY KEY.
```

Display 8-4

```
 « ADJUSTMENT OF
           SWITCHING POINT »
 PRESET POSITIONS OF
      'CAMERA/OFF/VCR' SWITCH
          'VCR' POSITION
         PRESS ANY KEY
```

Display 8-5

```
 SET UP OF SW POINT
          ADJUSTMENT STARTED.
 SET UP OF SW POINT
       ADJUSTMENT COMPLETED.
SW POINT ADJUSTMENT STARTED.
```

Display 8-6

```
 SW POINT ADJUSTMENT
             DATA CHEACKING.
    FINISHED WRITING DATA.
     ADJUSTMENT FINISHED.
        PRESS ANY KEY.
```

4. ERROR MESSAGE

4.1 Camera Digital Adjustments

ERROR MESSAGE	COUNTERMEASURE
ERROR OCCURRED. IRIS TROUBLE PRESS ANY KEY	· Check whether or not power is supplied. · Check the values of the iris drive circuit. · Defective soldering, damage to pattern, etc. in the above circuit. · Check the iris block and replace it if necessary.
ERROR OCCURRED ON dax ADJUSTMENT PRESS ANY KEY	· Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
D RANGE OVER. ERROR ON dax ADJUSTMENT PRESS ANY KEY.	· Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in theabove circuit.
ERROR OCCURRED ON da0 and da1 ADJUSTMENT PRESS ANY KEY	· Check the values in the hall amp circuit and its peripheral circuits. · Defective soldering, damage to pattern, etc. in the above circuits.
FILE NOT FOUND !!!! PRESS ANY KEY	· The adjustment program (file) cannot be found. · Check the adjustment floppy disk and replace it if necessary.
FILE OPEN ERROR !!!! PRESS ANY KEY	· The adjustment program (file) does not start. · Check the adjustment floppy disk and replace it if necessary.
ERROR OCCURRED ON C DUTY ADJUSTMENT PRESS ANY KEY ERROR OCCURRED ON FDET ADJUSTMENT PRESS ANY KEY	· Check the values of the iris drive circuit. · Defective soldering, damage to pattern, etc. in the above circuit. · Supply power again and re-adjust. · Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED. ZOOM DOES NOT WORK PRESS ANY KEY	· Supply power again and re-adjust.
TOO BRIGHT PRESS ANY KEY	· The subject is too bright. · Move the camera further away from the light box.
TOO DARK PRESS ANY KEY	· The subject is too dark. · Check the light box. · Move the camera closer to the light box.
D RANGE OVER ERROR ON HALL AMP IRIS CANNOT OPEN ANY MORE PRESS ANY KEY	· Supply power again and re-adjust. · The subject is too dark. · Check the light box. · Move the camera closer to the light box. · Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
STAURATION ERROR. TOO BRIGHT PRESS ANY KEY	· The subject is too bright. · Move the camera further away from the light box.
CAN'T ADJUST WHITE BALANCE PLEASE RETRY PRESS ANY KEY	· The subject is too bright or too dark. · Check the light box. · Move the camera closer to or away from the light box. · Supply power again and re-adjust.

4.2 Autofocus Adjustment

ERROR MESSAGE	COUNTERMEASURE
TIME OUT ERROR ON FOCUS	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON ZOOM	· If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON AF STEP	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
AF LIMIT OVER	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
AF ERROR	· If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TOO DARK	·Insufficient lighting. Check the subject.

4.3 Spot Noise Adjustment

ERROR MESSAGE	COUNTERMEASURE
ERROR!! SPOT NOISE COMPENSATION IS STOPPED BY INITIAL DATA. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	· Spot noise compensation is inhibited by the data in the EEPROM. · Turn the power on again. · Data in the EEPROM is defective. (Initialize it.) · Check the EEPROM,and if necessary,replace it.
ERROR!! THRESHOLD DATA ERROR. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	· Turn the power on again. · Data in the EEPROM is defective. (Initialize it.) · Check the EEPROM,and if necessary,replace it.
ERROR!! THE SPOT NOISE IS TOO MANY. CAN'T COMPENSATE ANY MORE. PRESS ANY KEY.	· The amount of spot noise that can be compensated reaches the limit. · Turn the power on again. · Check the CCD image sensor,and if necessary,replace it.

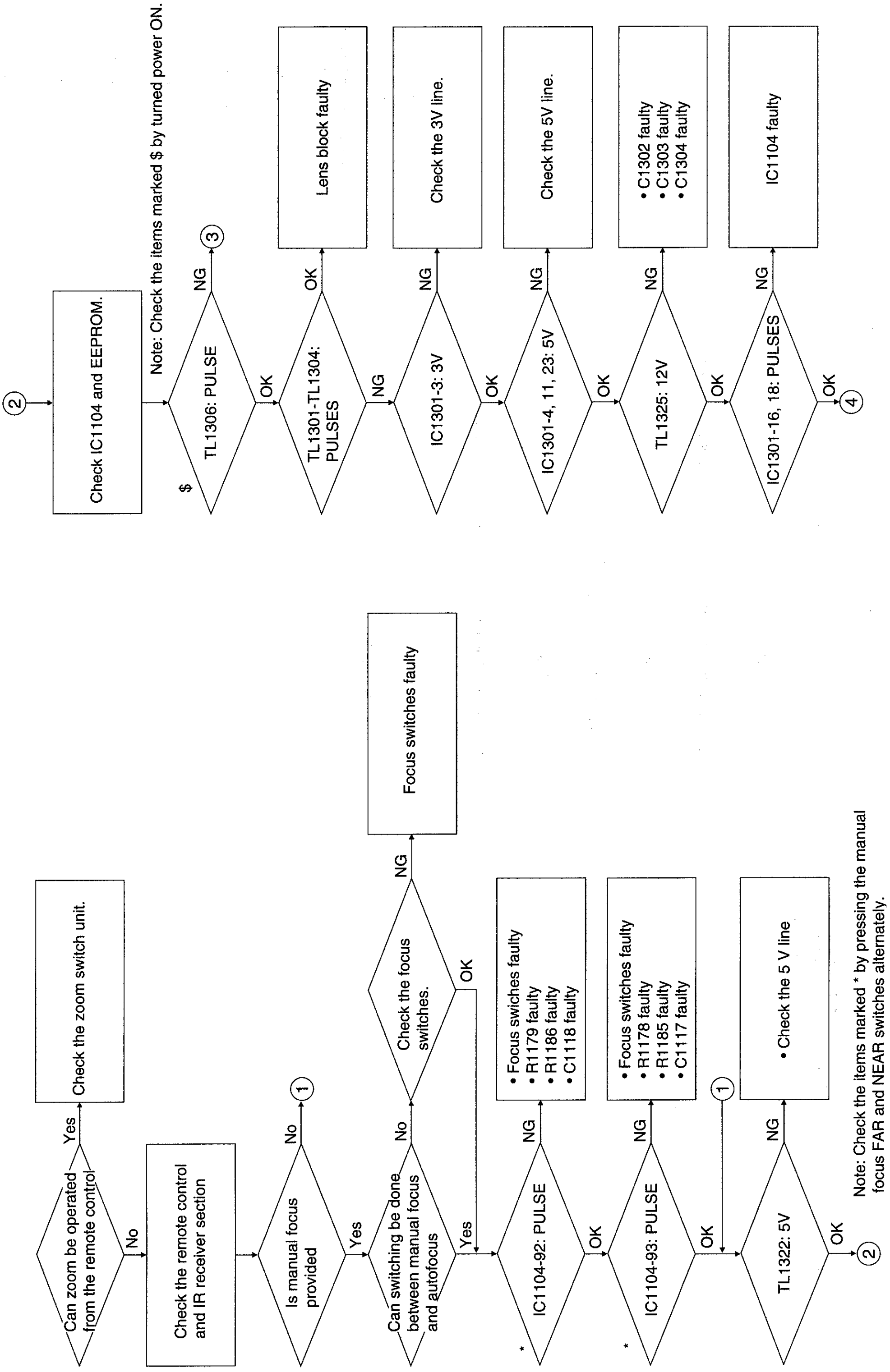
4.4 VCR Adjustment

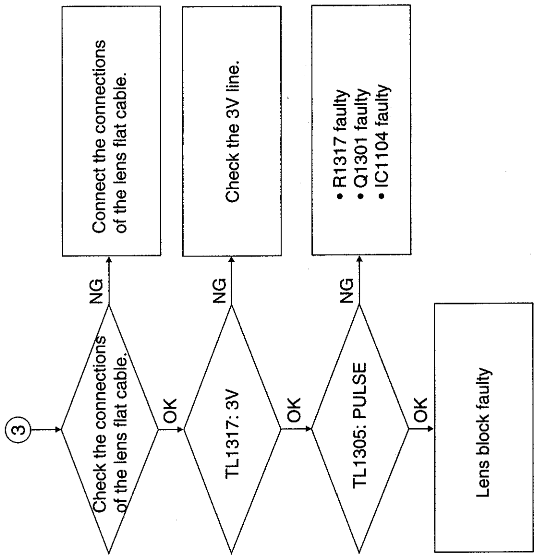
ERROR MESSAGE	COUNTERMEASURE
ERROR: SWP_TEST>DAT FILE NOT FOUND!	· The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
ERROR: INVALID MODEL PRESS ANY KEY	· A wrong model has been selected. · The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
THIS MODEL NEED NOT BE ADJUSTED PRESS ANY KEY	· A wrong model has been selected. · A product that needs analog adjustment is connected.
ADJUSTMENT INCOMPLETED PRESS ANY KEY	· The value set by adjustment defective. · Re-adjust. · Check cylinder. · Check the alignment tape. · Check whether or not the usual operation is done correctly.
RETRY ADJUSTING. PRESS ANY KEY	· Supply power again and re-adjust.
CAMERA IS NOT READY	· Check whether or not power is supplied.
ERROR OCCURRED CAN'T PLAY BACK PRESS ANY KEY	· No playback video. · Check the playback signal.
ERROR OCCURRED NO V.SYNC FOUND PRESS ANY KEY	· Vertical sync loss. · Check the vertical sync signal.
INVALID MODEL PRESS ANY KEY	· A wrong model has been selected. · The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
ERROR OCCURRED CAN'T RECORD PRESS ANY KEY	· No video recording. · Check the recording signal.

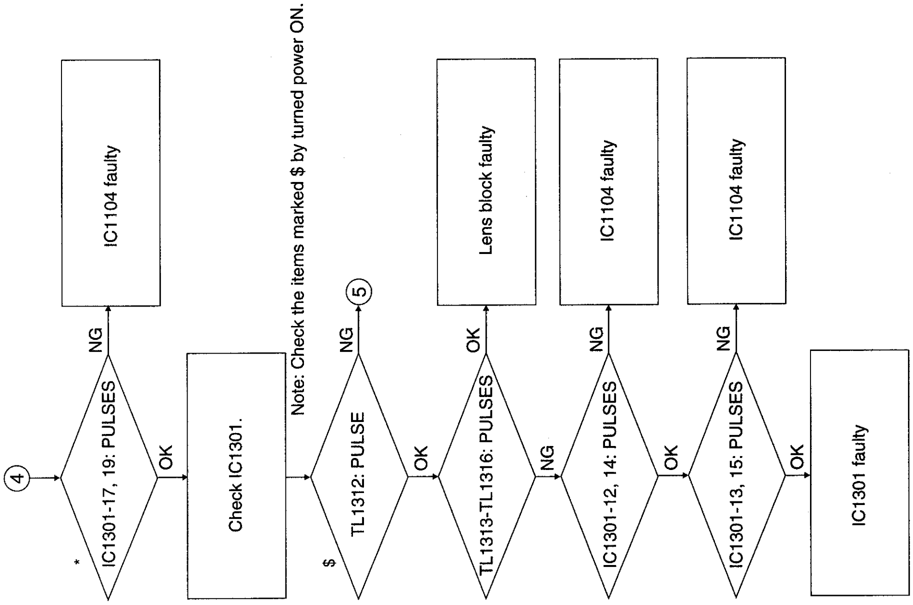
Memo

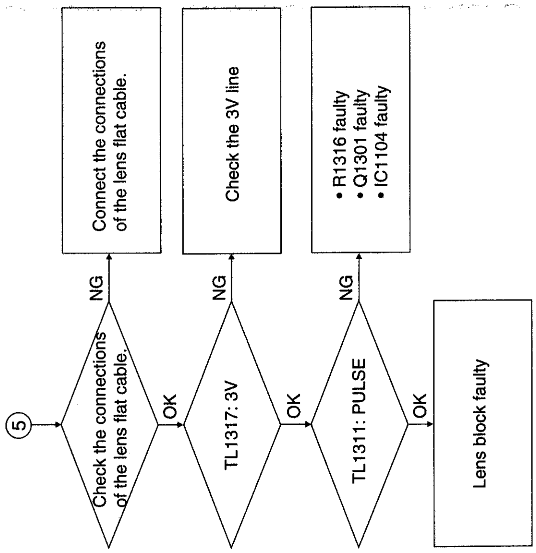
5. TROUBLESHOOTING OF AUTOFOCUS

(1) NO ZOOM AND FOCUS OPERATION

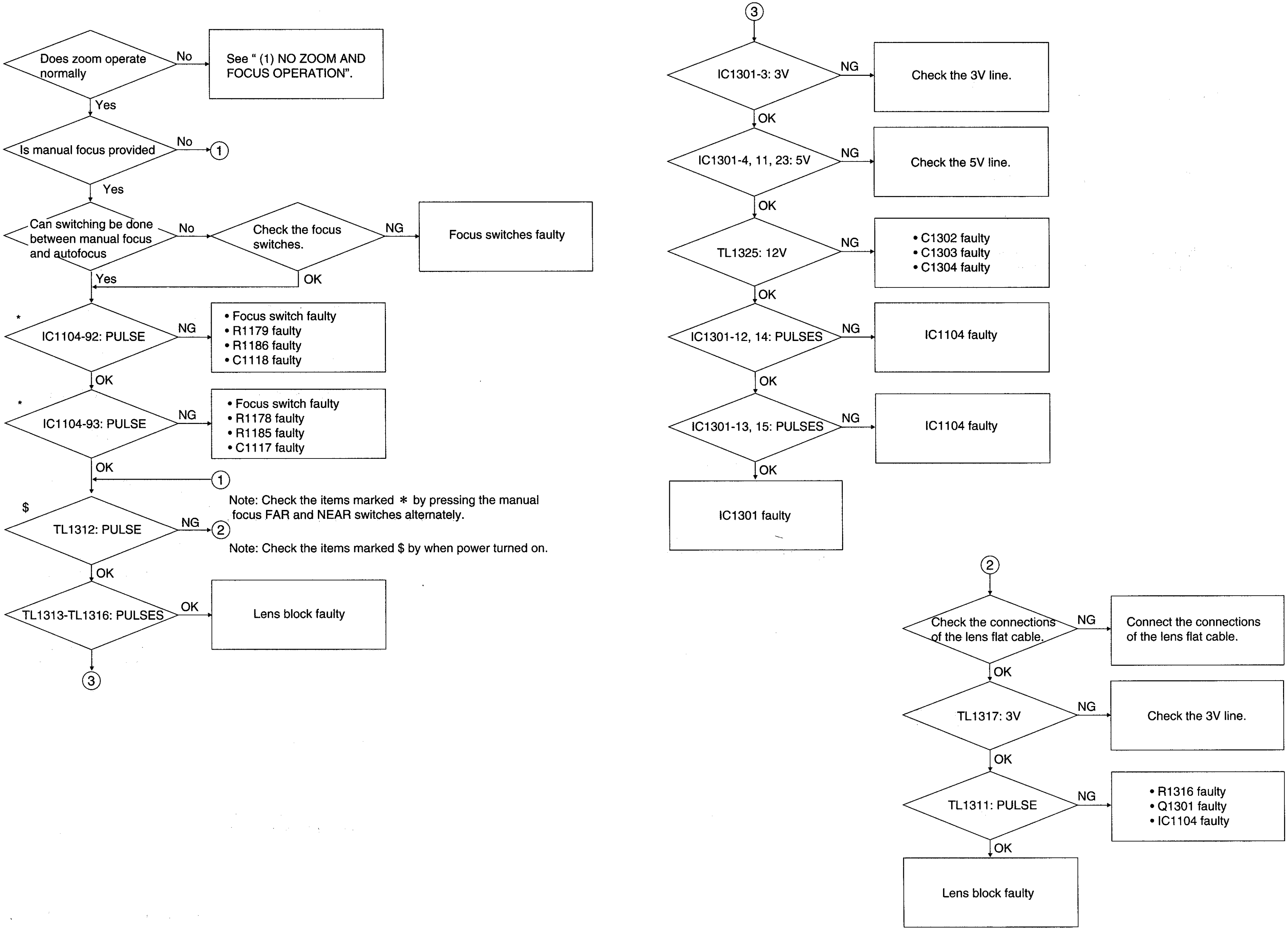

Can zoom be operated from the remote control
Yes
Check the zoom switch unit.
No
Check the remote control and IR receiver section
Is manual focus provided
No
①
Yes
Can switching be done between manual focus and autofocus
No
Check the focus switches.
NG
Focus switches faulty
OK
Yes
*
IC1104-92: PULSE
NG
• Focus swiches faulty
• R1179 faulty
• R1186 faulty
• C1118 faulty
OK
*
IC1104-93: PULSE
NG
• Focus switches faulty
• R1178 faulty
• R1185 faulty
• C1117 faulty
OK
①
TL1322: 5V
NG
• Check the 5 V line
OK
②
Note: Check the items marked * by pressing the manual focus FAR and NEAR switches alternately.
②
Check IC1104 and EEPROM.
Note: Check the items marked $ by turned power ON.
$
TL1306: PULSE
NG
③
OK
TL1301-TL1304: PULSES
OK
Lens block faulty
NG
IC1301-3: 3V
NG
Check the 3V line.
OK
IC1301-4, 11, 23: 5V
NG
Check the 5V line.
OK
TL1325: 12V
NG
• C1302 faulty
• C1303 faulty
• C1304 faulty
OK
IC1301-16, 18: PULSES
NG
IC1104 faulty
OK
④


3
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1317: 3V
NG
Check the 3V line.
OK
TL1305: PULSE
NG
• R1317 faulty
• Q1301 faulty
• IC1104 faulty
OK
Lens block faulty


4
*
IC1301-17, 19: PULSES
NG
IC1104 faulty
OK
Check IC1301.
Note: Check the items marked $ by turned power ON.
$
TL1312: PULSE
NG
5
OK
TL1313-TL1316: PULSES
OK
Lens block faulty
NG
IC1301-12, 14: PULSES
NG
IC1104 faulty
OK
IC1301-13, 15: PULSES
NG
IC1104 faulty
OK
IC1301 faulty


5
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1317: 3V
NG
Check the 3V line
OK
TL1311: PULSE
NG
• R1316 faulty
• Q1301 faulty
• IC1104 faulty
OK
Lens block faulty

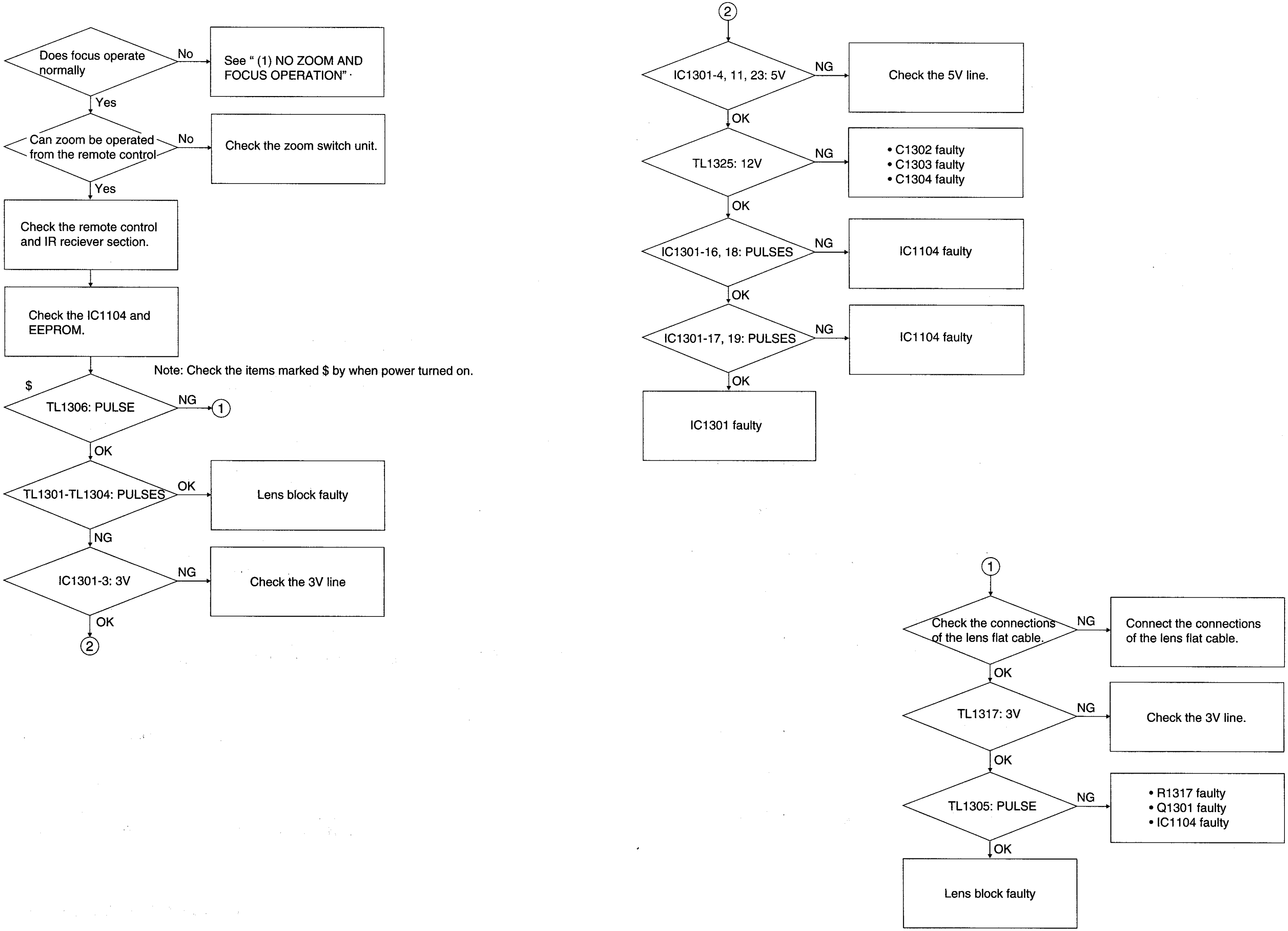
(2) NO FOCUS LENS OPERATION


Does zoom operate normally
No
See " (1) NO ZOOM AND FOCUS OPERATION".
Yes
Is manual focus provided
No
①
Yes
Can switching be done between manual focus and autofocus
No
Check the focus switches.
NG
Focus switches faulty
OK
Yes
*
IC1104-92: PULSE
NG
• Focus switch faulty
• R1179 faulty
• R1186 faulty
• C1118 faulty
OK
*
IC1104-93: PULSE
NG
• Focus switch faulty
• R1178 faulty
• R1185 faulty
• C1117 faulty
OK
①
$
TL1312: PULSE
NG
②
OK
TL1313-TL1316: PULSES
OK
Lens block faulty
③
③
IC1301-3: 3V
NG
Check the 3V line.
OK
IC1301-4, 11, 23: 5V
NG
Check the 5V line.
OK
TL1325: 12V
NG
• C1302 faulty
• C1303 faulty
• C1304 faulty
OK
IC1301-12, 14: PULSES
NG
IC1104 faulty
OK
IC1301-13, 15: PULSES
NG
IC1104 faulty
OK
IC1301 faulty
②
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1317: 3V
NG
Check the 3V line.
OK
TL1311: PULSE
NG
• R1316 faulty
• Q1301 faulty
• IC1104 faulty
OK
Lens block faulty

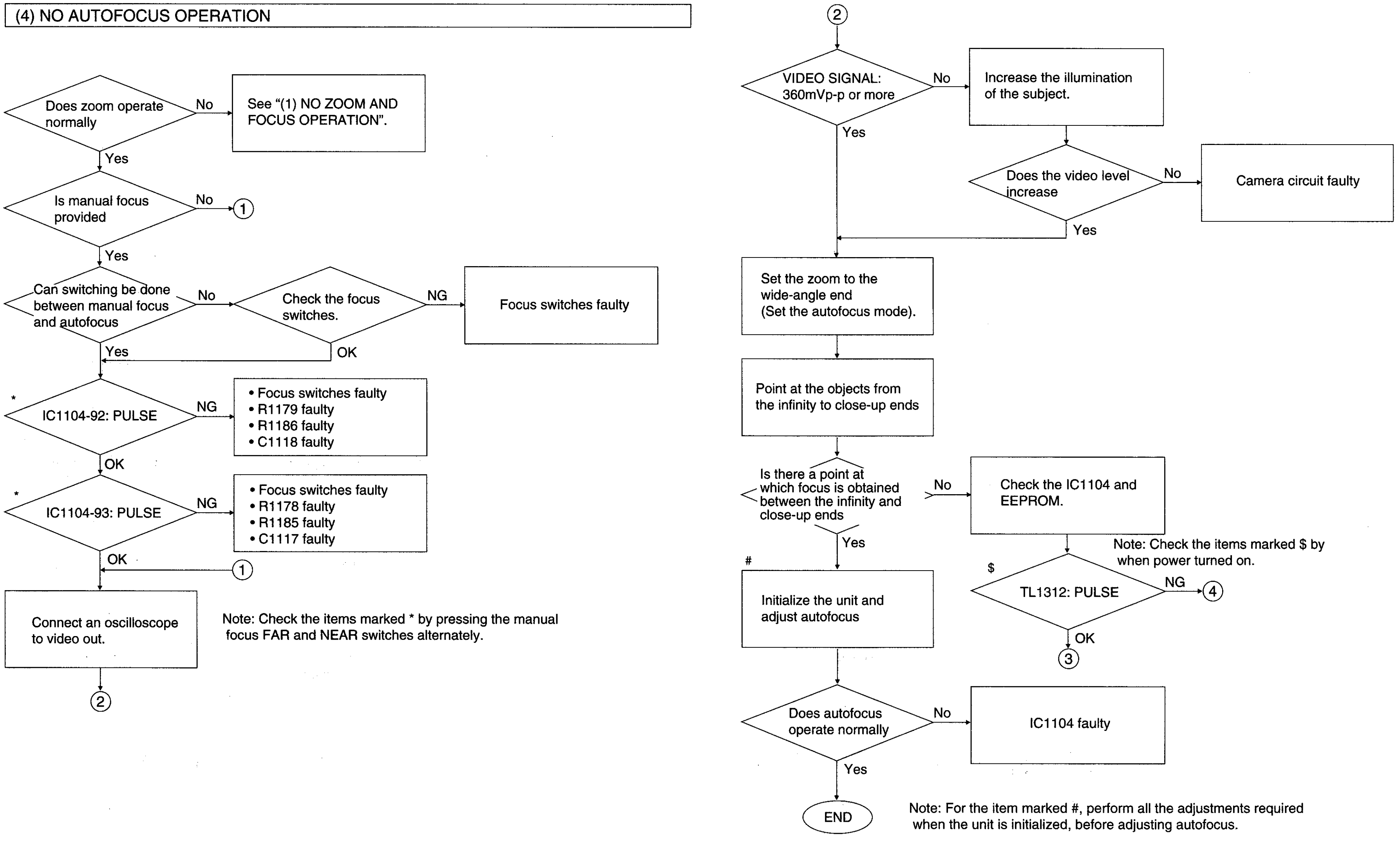
Note: Check the items marked ∗ by pressing the manual focus FAR and NEAR switches alternately.

Note: Check the items marked $ by when power turned on.

(3) NO ZOOM OPERATION


Note: Check the items marked $ by when power turned on.
Does focus operate normally
No
See " (1) NO ZOOM AND FOCUS OPERATION" .
Yes
Can zoom be operated from the remote control
No
Check the zoom switch unit.
Yes
Check the remote control and IR reciever section.
Check the IC1104 and EEPROM.
$
TL1306: PULSE
NG
①
OK
TL1301-TL1304: PULSES
OK
Lens block faulty
NG
IC1301-3: 3V
NG
Check the 3V line
OK
②
②
IC1301-4, 11, 23: 5V
NG
Check the 5V line.
OK
TL1325: 12V
NG
• C1302 faulty
• C1303 faulty
• C1304 faulty
OK
IC1301-16, 18: PULSES
NG
IC1104 faulty
OK
IC1301-17, 19: PULSES
NG
IC1104 faulty
OK
IC1301 faulty
①
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1317: 3V
NG
Check the 3V line.
OK
TL1305: PULSE
NG
• R1317 faulty
• Q1301 faulty
• IC1104 faulty
OK
Lens block faulty

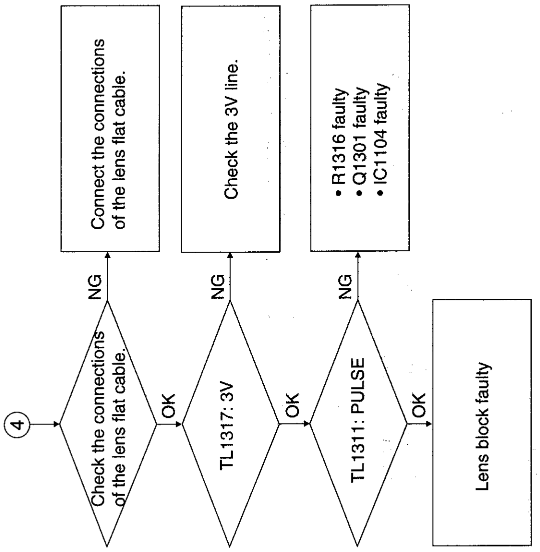
(4) NO AUTOFOCUS OPERATION

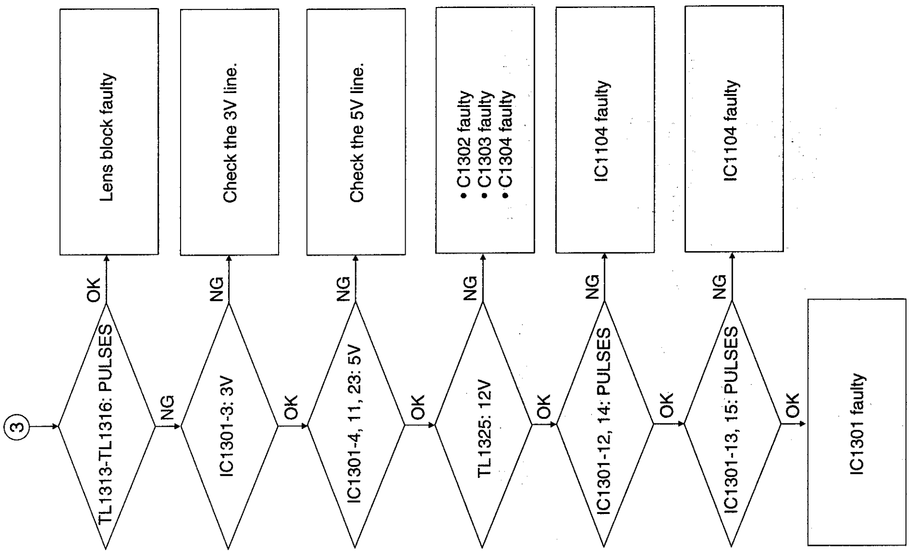

Does zoom operate normally
No
See "(1) NO ZOOM AND FOCUS OPERATION".
Yes
Is manual focus provided
No
①
Yes
Can switching be done between manual focus and autofocus
No
Check the focus switches.
NG
Focus switches faulty
OK
Yes
*
IC1104-92: PULSE
NG
• Focus switches faulty
• R1179 faulty
• R1186 faulty
• C1118 faulty
OK
*
IC1104-93: PULSE
NG
• Focus switches faulty
• R1178 faulty
• R1185 faulty
• C1117 faulty
OK
①
Connect an oscilloscope to video out.
②
②
VIDEO SIGNAL: 360mVp-p or more
No
Increase the illumination of the subject.
Does the video level increase
No
Camera circuit faulty
Yes
Yes
Set the zoom to the wide-angle end (Set the autofocus mode).
Point at the objects from the infinity to close-up ends
Is there a point at which focus is obtained between the infinity and close-up ends
No
Check the IC1104 and EEPROM.
$
TL1312: PULSE
NG
④
OK
③
Yes
#
Initialize the unit and adjust autofocus
Does autofocus operate normally
No
IC1104 faulty
Yes
END

Note: Check the items marked * by pressing the manual focus FAR and NEAR switches alternately.

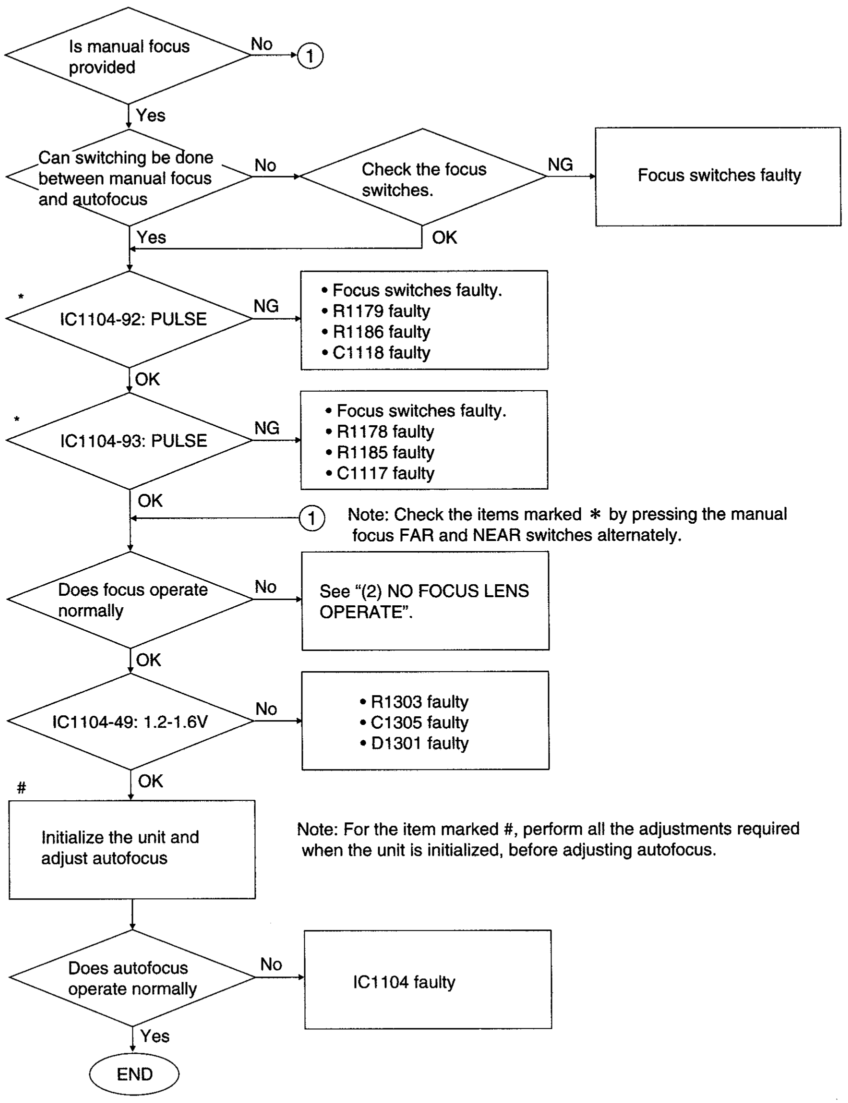
Note: Check the items marked $ by when power turned on.

Note: For the item marked #, perform all the adjustments required when the unit is initialized, before adjusting autofocus.


4
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1317: 3V
NG
Check the 3V line.
OK
TL1311: PULSE
NG
• R1316 faulty
• Q1301 faulty
• IC1104 faulty
OK
Lens block faulty


3
TL1313-TL1316: PULSES
OK
Lens block faulty
NG
IC1301-3: 3V
NG
Check the 3V line.
OK
IC1301-4, 11, 23: 5V
NG
Check the 5V line.
OK
TL1325: 12V
NG
• C1302 faulty
• C1303 faulty
• C1304 faulty
OK
IC1301-12, 14: PULSES
NG
IC1104 faulty
OK
IC1301-13, 15: PULSES
NG
IC1104 faulty
OK
IC1301 faulty

(5) SUBJECT IS GREATLY OUT-OF-FOCUS WHEN ZOOMED


Is manual focus provided
No
①
Yes
Can switching be done between manual focus and autofocus
No
Check the focus switches.
NG
Focus switches faulty
OK
Yes
*
IC1104-92: PULSE
NG
• Focus switches faulty.
• R1179 faulty
• R1186 faulty
• C1118 faulty
OK
*
IC1104-93: PULSE
NG
• Focus switches faulty.
• R1178 faulty
• R1185 faulty
• C1117 faulty
OK
①
Does focus operate normally
No
See "(2) NO FOCUS LENS OPERATE".
OK
IC1104-49: 1.2-1.6V
No
• R1303 faulty
• C1305 faulty
• D1301 faulty
OK
#
Initialize the unit and adjust autofocus
Does autofocus operate normally
No
IC1104 faulty
Yes
END

Note: Check the items marked ∗ by pressing the manual focus FAR and NEAR switches alternately.

Note: For the item marked #, perform all the adjustments required when the unit is initialized, before adjusting autofocus.

Memo

Vorsicht

Lithium-Batterie: Explosionsgefahr bei falschem Austausch der Batterie. Nur gegen den vom Gerätehersteller empfohlenen Typ (oder gleichwertig) austauschen. Verbrauchte Batterien gemäß Anweisungen des Herstellers vermüllen.
Wenn die Lithium-Batterie ausgetauscht wird, unbedingt den gleichen Typ verwenden und diesen richtig anschließen.

Wartung:
- Lithium-Batterien enthalten gefährliche Chemikalien.
- Mit Vorsicht handhaben und vermüllen.
- Niemals in ein Feuer werfen.
- Niemals kurzschließen.
- Zum Vermüllen in einen Plastikbeutel einlegen und an einer Sammelstelle oder am Sondermüllplatz abgeben.

Vorsicht (Flüssigkristallanzeige)

Die LCD-Tafel (Flüssigkristallanzeige) wurde unter Verwendung von fortschrittlichster Präzisionstechnologie hergestellt. Mehr als 99,99% der Bildelemente (Pixel) sind wirksam, wobei jedoch manche (weniger als 0,01%) als farbige helle Punkte erscheinen können. Dies weist auf keinen Fehler hin, da die LCD-Tafel bis an die Grenzen der derzeitigen Technologie geht.

Vorsicht (CRT EVF)

Vorsicht ist an dem weiß bemalten Abschnitt der Leiterplatte des elektronischen Suchers geboten, da dieser eine Hochspannung erzeugt.

Röntgenstrahlung

Viele elektrische und mechanische Teile weisen spezielle Sicherheitsfunktionen auf. Diese sind anhand einer Sichtprüfung oft nicht feststellbar, und diese Schutzwirkungen können auch nicht gewährleistet werden, wenn Ersatzteile mit höherer Spannung, Wattzahl usw. verwendet werden. Die Ersatzteile, die solche spezielle Sicherheitsfunktionen aufweisen, sind in dieser Wartungsanleitung besonders gekennzeichnet. Elektrische Komponenten mit solchen Merkmalen sind in den Schaltplänen und der Stückliste in dieser Wartungsanleitung mit dem Symbol ⚠ gekennzeichnet. Die Verwendung eines Ersatzteiles, das nicht die gleichen Schutzwirkungen wie ein von HITACHI empfohlenes, in der Stückliste dieser Wartungsanleitung aufgeführtes Ersatzteil aufweist, kann zu Stromschlag, Feuer und anderen Gefahren führen. Die Sicherheit unserer Produkte wird ständig verbessert, und neue Instruktionen werden von Zeit zu Zeit veröffentlicht. Für die neuesten Informationen sollten Sie immer die geltende HITACHI Wartungsanleitung zu Rate ziehen. Ein Abonnement bzw. zusätzliche Kopien der HITACHI Wartungsanleitung sind gegen eine Nominalgebühr von der HITACHI SALES CORPORATION erhältlich.

Hinsweis zur Sicherheit des Produktes

Die Primärquelle für die Röntgenstrahlung in diesem Sucher ist die Bildröhre. Die in diesem Sucher verwendete Bildröhre weist eine spezielle Konstruktion auf, um die Röntgenstrahlung zu begrenzen. Für kontinuierlichen Schutz gegen Rötgenstrahlung muß die Ersatzröhre vom gleichen Typ wie die ursprünglich von Hitachi genehmigte Röhre sein.

Wie die "TYP"-Identifikationen in der Wartungsanleitung unterschieden werden

Die Teile und Schaltkreise sind in dieser Anleitung durch den "TYP" identifiziert, um die Unterschiede zwischen den Modellen unterscheiden zu können. Die TYP-Nummern sind gleich wie die Modell-Nummern. Die folgende Tabelle zeigt, wie die TYP-Identifikationen zu lesen sind.

TYP-Identifikation	Modellbezeichnung
TYP 768	VM-H768LE(AU)/H768LE(SW)
TYP 765	VM-H765LE/H765LE(UK)
TYP 665	VM-H665LE
TYP 660	VM-H660E
TYP 568	VM-E568LE(AU)/E568LE(SW)

TYP-Identifikation	Modellbezeichnung
TYP 565	VM-E565LE
TYP 563	VM-E563LE(UK)
TYP 465	Nicht verwendet
TYP 368	VM-E368E(AU)/E368E(SW)
TYP 360	VM-E360E/E360E(UK)

Unterscheidung der "MODELL"-Identifikationen in den Einstellungen der elektrischen Schaltkreise in dieser Anleitung.

Falls die Einstellungswerte (Eingabedaten) in Abhängigkeit von dem Modell variieren, werden diese individuell unter Verwendung der "MODELL"-Identifikationen beschrieben. Nachfolgend ist der Zusammenhang zwischen den "MODELL"-Identifikationen und den Modellbezeichnungen aufgeführt:

MODELL-Identifikation	Modellbezeichnung
Modell HE	VM-H765LE/H765LE(UK) VM-H665LE VM-H660E
Modell EE	VM-H768LE(AU)/H768LE(SW) VM-E568LE(AU)/E568LE(SW) VM-E565LE

MODELL-Identifikation	Modellbezeichnung
Modell EE	VM-E563LE(UK) VM-E368E(AU)/E368E(SW) VM-E360E/E360E(UK)
Modell HA	nicht verwendet
Modell EA	nicht verwendet

Hinweise zur Verwendung der Wartungsanleitung

Nachfolgend sind die bei der Verwendung der Wartungsanleitung zu beachtenden Punkte aufgeführt:

1. Einheiten der in der Stückliste verwendeten Werte

Bestimmte Symbole sind nachfolgend für Einheiten der Werte von Widerständen, Kondensatoren und spulen in der Stückliste aufgeführt. Wenn sie diese Einheiten ablesen, beachten Sie die üblichen Schreibweisen:

Teil	Angabe in der Liste	Übliche Schreibweise
Widerstand	KOHM	k Ω
Kondensator	UF PF	µF pF
Spule	UH MH	µH mH

2. Werte in den Schaltdiagrammen

Die Werte, dielektrische Durchschlagsfestigkeit (Leistungskapazitanz) und Toleranzen der Widerstände (ausgenommen Regelwiderstände) und Kondensatoren werden in den Schaltdiagrammen unter Verwendung von Abkürzungen angegeben.

[Widerstände]

Benennung	Angabe
Wert	Keine Angabe .... Ω K .... kΩ M .... MΩ
Toleranz	Keine Angabe .... ±5% (Alle anderen Toleranzen als ±5% sind in den Schaltdiagrammen angegeben.)
Leistungs-kapazität	Keine Angabe .... 1/8 W (1/16 W für leitungslose Widerstände ohne Angabe) Alle anderen als die obigen Kapazitanzen sind in den Schaltdiagrammen angegeben.

[Kondensatoren]

Benennung	Angabe
Wert	Keine Angabe .... µF P .... pF
Dielektrische Durchschlagsfestigkeit	Keine Angabe .... 50V (Alle anderen dielektrischen Durchschlagsfestigkeiten als 50 V sind in den Schaltdiagrammen angegeben.)

[Spulen]

Benennung	Angabe
Wert	µ .... µH m .... mH

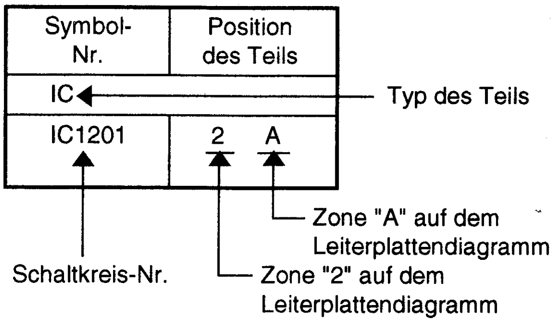
3. Identifikation der Seiten A/B in den Leiterplattendiagrammen

1) Leiterplatten mit Leiterbahnen auf einer Seite und Teilen auf beiden Seiten.
   Seite A: Zeigt diskrete Teile, gesehen von der Leiterbahnseite.
   Seite B: Zeigt leitungslose Teile, gesehen von der Leiterbahnseite.
2) Leiterplatten mit Leiterbahnen und Teilen auf beiden Seiten.
   Seite A: Zeigt die Teile und Leiterbahnen, wie sie bei geöffnetem Gehäuse gesehen werden können.
   Seite B: Zeigt die Teile und Leiterbahnen auf der Rückseite von Seite A.

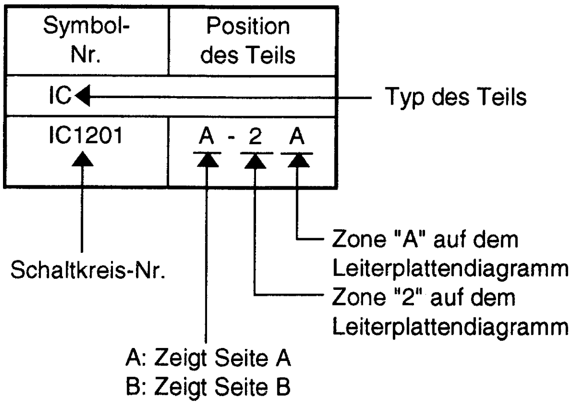
4. Tabelle der Indexpositionen der Teile

Diese Tabelle zeigt die Positionen der einzelnen Teile in den Leiterplattendiagrammen. Die Positionen werden mit Hilfe der an den Außenseiten der Diagramme dargestellten Maßstäbe angezeigt.

1) Eine Diagrammanzeige für jede Leiterplatte


Symbol-Nr.
Position des Teils
IC
Typ des Teils
IC1201
2 A
Zone "A" auf dem Leiterplattendiagramm
Schaltkreis-Nr.
Zone "2" auf dem Leiterplattendiagramm

2) Zwei Diagramme angegeben für jede Leiterplatte


Symbol-Nr.
Position des Teils
IC
Typ des Teils
IC1201
A - 2 A
Zone "A" auf dem Leiterplattendiagramm
Schaltkreis-Nr.
Zone "2" auf dem Leiterplattendiagramm
A: Zeigt Seite A
B: Zeigt Seite B

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Technische Daten

Allgemeines

Stromversorgung	7,2V Gleichstrom
Leistungsaufnahme	VM-H768LE(AU)/H768LE(SW): 3,6 Watt (bei Aufnahme mit ausgeschaltetem LCD-Monitor) 4,1 Watt (bei Aufnahme mit eingeschaltetem LCD-Monitor) VM-H765LE/H765LE(UK): 3,6 Watt (bei Aufnahme mit ausgeschaltetem LCD-Monitor) 4,1 Watt (bei Aufnahme mit eingeschaltetem LCD-Monitor) VM-H665LE: 3,5 Watt (bei Aufnahme mit ausgeschaltetem LCD-Monitor) 4,0 Watt (bei Aufnahme mit eingeschaltetem LCD-Monitor) VM-E568LE(AU)/E568LE(SW): 3,4 Watt (bei Aufnahme mit ausgeschaltetem LCD-Monitor) 3,8 Watt (bei Aufnahme mit eingeschaltetem LCD-Monitor) VM-E565LE: 3,4 Watt (bei Aufnahme mit ausgeschaltetem LCD-Monitor) 3,8 Watt (bei Aufnahme mit eingeschaltetem LCD-Monitor) VM-E563LE(UK): 3,4 Watt (bei Aufnahme mit ausgeschaltetem LCD-Monitor) 3,8 Watt (bei Aufnahme mit eingeschaltetem LCD-Monitor) VM-H660E: 3,5 Watt (bei Aufnahme) VM-E368E(AU)/E368E(SW): 3,4 Watt (bei Aufnahme) VM-E360E/E360E(UK): 3,4 Watt (bei Aufnahme)
Zulässiger Temperaturbereich bei Betrieb	0°C bis +40°C
Zulässige Luftfeuchtigkeit bei Betrieb	< 80%
Zulässiger Temperaturbereich bei der Aufbewahrung	–20° bis +60°C
Abmessungen (B x H x L)	111,5 x 111,5 x 202 mm
Gewicht	VM-H768LE(AU)/E568LE(SW)/H765LE/H765LE(UK)/H665LE/ VM-E568LE(AU)/E568LE(SW)/E565LE/E563LE(UK): ca. 836g (ohne Akku und Cassette) VM-H660E/E368E(AU)/E368E(SW)/E360E/E360E(UK): ca. 757g (ohne Akku und Cassette)

Video-Aufnahmesystem

Format	8 mm
Aufnahme-/Wiedergabesystem	Zwei Video-Aufnahme-/Wiedergabeköpfe
Videosignal	PAL-Farb- und CCIR-Schwarzweißsignale, 625 Zeilen
Bandgeschwindigkeit	SP: 20,05 mm/s.
Video-Ausgangspegel	1,0 Vs-s, 75 Ohm
Audio-Ausgangspegel	– 8 dB, < 1 kOhm
Schnellvorlauf-/Rücklaufdauer	ca. 6 Minuten mit Cassette P5-90

Kamera

Abtastung	625 Zeilen/50 Halbbilder/25 Vollbilder
Mindestbeleuchtung	VM-H768LE(AU)/H768LE(SW): 0,3 lx VM-H765LE/H765LE(UK)/H665LE/H660E: 0,5 lx VM-E568LE(AU)/E568LE(SW)/E565LE/ E563LE(UK)/E368E(AU)/E368E(SW)/ E360E/E360E(UK): 0,3 lx
Aufnahmeelement	1/4-Zoll CCD-Bildelement
Objektiv	Motorbetriebenes 22:1 Zoom-Objektiv (F1,6 - 3,8 (4 - 88 mm)) mit Autofokus und Blendenautomatik
Objektivdurchmesser	46 mm

Vergleich mit früherem Modell

Hinweis: Die normalerweise am Ende der Modellbezeichnung angehängten Bestimmungsländer, wie (AU), (SW), (UK) usw., wurden in dieser Tabelle weggelassen.

	Benennung	VM-E755LE/E558LE VM-E555LE/E553LE	VM-H768LE/H765LE VM-H665LE/E568LE VM-E565LE/E563LE	VM-H660E/E368E/E360E
Allgemeines	Stromversorgung	7,2 V Gleichstrom		
	Leistungsaufnahme (bei Aufnahme mit eingeschaltetem LCD-Monitor)	4,6 W [VM-H755LE] 4,3 W [VM-E558LE/E555LE/E553LE]	4,1 W [VM-H768LE/H765LE] 4,0 W [VM-H665LE] 3,8 W [VM-E568LE/E565LE/E563LE]	3,5 W [VM-H660E] 3,4 W [VM-E368E/E360E]
	Abmessungen (B x H x T mm)	118,5 x 102,5 x 181	111,5 x 111,5 x 202	
	Gewicht	Ca. 850 g	Ca. 836 g	Ca. 757 g
Videorecorder	Format	8 mm (Hi-8) [VM-H755LE] 8 mm [VM-E558LE/E555LE/E553LE]	8 mm (Hi-8) [VM-H768LE/H765LE/H665LE] 8 mm [VM-E568LE/E565LE/E563LE]	8 mm (Hi-8) [VM-H660E] 8 mm [VM-E368E/E360E]
	Aufnahme/Wiedergabesystem	Zwei Video-Aufnahme-/Wiedergabeköpfe		
	Videosignal	PAL-Farb- und CCIR-Schwarzweißsignale, 625 Zeilen		
	Bandgeschwindigkeit	SP: 20,05 mm/s		
	Schnellvorlauf/Rücklaufzeit	Weniger als 6 Minuten mit P5-90 Cassette		
	Kopftrommel	40 mm		
	Grundlegender Chassis-Typ	UH-Bandlaufwerk		
Kamera	Abtastung	625 Zeilen/50 Halbbilder/25 Vollbilder		
	Erforderliche Mindestbeleuchtung	0,5 lx [VM-H755LE] 0,1 lx [VM-E558LE] 0,3 lx [VM-E555LE/E553LE]	0,5 lx [VM-H765LE/H665E] 0,3 lx [VM-H768LE/E568LE/E565LE/E563LE]	0,5 lx [VM-H660E] 0,3 lx [VM-E368E/E360E]
	Aufnahmeelement	1/4" CCD Bildsensor		
	Objektivdurchmesser	46 mm		
	Zoom-Verhältnis/Blende	22:1 (4 - 88 mm)		
	Blende	F1,6 - 3,8		
	Zoom-Geschwindigkeit	Einstellbare Geschwindigkeit		
Merkmale	Elektronischer Sucher	Kathodenstralhöre (Schwarzweiß)		
	Digital-Zoom	Ja [x 400 (22 x 12 x Instant-Zoom)]	Ja [x 500 (22 x 22)]	
	Instant-Zoom	Ja (x 1,5)	Nein	
	Autofokussystem	Video-Autofokus		
	Programm AE (Verschlußzeit)	Ja (nur Programm AE)		
	Wählbare Programm-AE	Nein	Ja [VM-H768LE/H765LE/H665LE/E565LE/E563LE] (AUTO, SPORTS, PORTRAIT, SPOTLIGHT, GAIN UP) Nein [VM-E568LE]	Ja [VM-H660E] (AUTO, SPORTS, PORTRAIT, SPOTLIGHT, GAIN UP) Nein [VM-E368E/E360E]
	AV-Eingang	Nein		
	S-Stecker-Ausgang	Ja [VM-H755LE] Nein [VM-E558LE/E555LE/E553LE]	Ja [VM-H768LE/H765LE/H665LE] Nein [VM-E568LE/E565LE/E563LE]	Ja [VM-H660E] Nein [VM-E368E/E360E]
	AV-Schnitt	Ja (mit Hilfe von Fernbedienung)		
	Audiosystem und Mikrofon	Stereo [VM-H755LE] Mono [VM-E558LE/E555LE/E553LE]	Stereo [VM-H765LE/H665LE] Mono [VM-H768LE/E568LE/E565LE/E563LE]	Mono
	Multi-Wiedergabe (Umwandlung PAL 60)	Ja (Wählbar)		
	Digital-Effekt und Ein/Ausblenden	Ja		
	Datumssuche	Ja		
	Magnetbandanalysator ATRS	Nein	Ja [VM-H768LE/H765LE/H665LE] Nein [VM-E568LE/E565LE/E563LE]	Ja [VM-H660E] Nein [VM-E368E/E360E]

	Benennung	VM-E755LE/E558LE VM-E555LE/E553LE	VM-H768LE/H765LE VM-H665LE/E568LE VM-E565LE/E563LE	VM-H660E/E368E/E360E
Merkmale	Tape + - Funktion	Nein	Ja [VM-H768LE/H765LE/H665LE] Nein [VM-E568LE/E565LE/E563LE]	Ja [VM-H660E] Nein [VM-E368E/E360E]
	Elektronische Bildstabilisierung (EIS)	Ja (Bildelementsystem) [VM-H755LE] Ja (Elektrisches System) [VM-E555LE] Nein [VM-E558LE/E553LE]	Ja (Bildelementsystem) [VM-H768LE/H765LE/H665LE/E565LE] Nein [VM-E568LE/E563LE]	Ja (Bildelementsystem) [VM-H660E] Nein [VM-E368E/E360E]
	LCD-Monitor	2,5-Zoll		Nein
	Eingebaute Filmleuchte	Nein	Ja [VM-H768LE/H765LE] Nein [VM-H665LE/E568LE/E565LE/E563LE]	Nein
	Internes Laden des Akkus	Nein	Ja	
Zubehör	Netz-/Ladegerät	VM-ACE5E		
	Akku	VM-BPL13		
	Fernbedienung	VM-RME411A(R)	VM-RME611A [ausgenommen VM-E568LE]	VM-RM611A [ausgenommen VM-E368E]

Vergleich der Hauptsteuerungs-IC

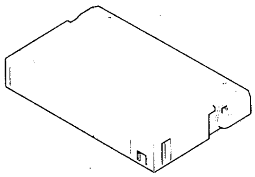
Hinweis: Die normalerweise am Ende der Modellbezeichnung angehängten Bestimmungsländer, wie (AU), (SW), (UK) usw., wurden in dieser Tabelle weggelassen.

Benennung	VM-E755LE/E558LE VM-E555LE/E553LE	VM-H768LE/H765LE VM-H665LE/E568LE VM-E565LE/E563LE	VM-H660E/E368E/E360E
CCD Sensor und Gyro			
CCD-Sensor	ICX211AK-L (IC1001) [VM-H755LE] ICX207AK-K (IC1001) [Ausgenommen VM-H755LE]	ICX211AK-L (IC1001) [VM-H765LE/H665LE] ICX207AK-K (IC1001) [VM-H768LE/E568LE/E565LE/E563LE]	ICX211AK-L (IC1001) [VM-H660E] ICX207AK-K (IC1001) [VM-E368E/E360E]
V-Bewegung (Vertikaler Gyro)	ENC-03JA-03 (IC1401) [Ausgenommen VM-E558LE/E553LE]	ENC-03JA-03 (IC1401) [Ausgenommen VM-E568LE/E563LE]	ENC-03JA-03 (IC1401) [Ausgenommen VM-E368E/E360E]
H-Bewegung (Horizontaler Gyro)	ENC-03JB-03 (IC1402) [Ausgenommen VM-E558LE/E553LE]	ENC-03JB-03 (IC1402) [Ausgenommen VM-E568LE/E563LE]	ENC-03JB-03 (IC1402) [Ausgenommen VM-E368E/E360E]
Gyro-Verstärker	NJM064V (IC1403) [Ausgenommen VM-E558LE/E553LE]	NJU7018M (IC1403) [Ausgenommen VM-E568LE/E563LE]	NJU7018M (IC1403) [Ausgenommen VM-E368E/E360E]
Sensortreiber (Treiberimpulsgenerator)	µPD16510GR (IC1103)	µPD16510GR (IC0203)	
Videoverarbeitung und ATF			
Video-DSP (Digitalverarbeitung)	HG73C012TE (IC1102) HG73C061TE (IC0201)	MB87L1551PMT2 (IC0201)	
ATF	µPC5023GS-122-E1 (IC0601)		
LCD-Verarbeitung	IR3Y29AM (IC5301)		
LCD-D/A-Wandler	M62352GP (IC5302)		
LCD-Impulsgenerator	LZ9GH18 (IC5601)		
LCD OSC-Steuerung	NJM3414 AV (IC5602)		
CDS/AGC und A/D-Wandler	HD49323F (IC1101)	HD49323F (IC0202)	
Videokopfschalter	HA118189MPER (IC0101)	HA118189MPER (IC0101)	
Phasen-EQ/FM-Spitzenwert	µPC5023GS-146 (IC0102)	Nicht vorhanden	
V.RAM	MSM54V16258A50 (IC0202)		
Synchronseparator	BA7071F (IC0203)		
Videoverstärker	µPC5023GS-153 (IC0204)	µPC5020GS-129 (IC0301)	
RGB-Verstärker	Nicht vorhanden	µPC5020GR-125-8J (IC0350)	Nicht vorhanden

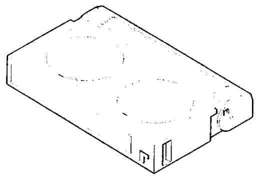
Benennung	**VM-E755LE/E558LE VM-E555LE/E553LE**	**VM-H768LE/H765LE VM-H665LE/E568LE VM-E565LE/E563LE**	**VM-H660E/E368E/E360E**
Kamerasteuerung und Systemsteuerung			
Digital-µP (D-µP)	HD6432237M03TE (IC1104)	HD6432237E6H (IC1104)	
EEPROM	X2509V-217 (IC1105)	AT25160 (IC1105)	
D/A-Wandler	Nicht vorhanden	MB88347PFV (IC1111)	Nicht vorhanden
F. Det/Blenden-Treiber	µPC5023GS-147GJG (IC1201)		
Treiber für Zoommotor/Fokussiermotor	µPD16833AG3 (IC1301)		
Systemsteuerungs-µP (S-µP)	CXP87248A-153R (IC0901)	CXP87360-132R (IC0901)	
Speicherschutz-Detektor	NJU7284EV (IC0902)	NJU7285BV (IC0902)	
Zeichengenerator	µPD6461GS-942-E1 (IC0904) [VM-H755LE/E555LE/E553LE] µPD6461GS-941-E1 (IC0904) [VM-E558LE]	µPD6461GS-947-E1 (IC0904) [VM-H765LE/H665LE/E565LE/E563LE] µPD6461GS-941-E1 (IC0904) [VM-H768LE/E568LE]	µPD6461GS-947-E1 (IC0904) [VM-H660E/E360E] µPD6461GS-941-E1 (IC0904) [VM-E368E]
Pegelverschiebung	SN74AHC126PW (IC0906)	Nicht vorhanden	
Infrarot-Empfänger	GP1U101X (IC0907)	GP1U101X (IC0701)	
Servo und Stromversorgung			
Treiber für Kopftrommelmotor	LB1950V (IC0631)		
Treiber für Capstanmotor	LB1991V (IC0651)		
Treiber für Lademotor	BA6417F (IC0671)		
PWM	BA9735KV (IC0551)	BA9736KV (IC0551)	
5 V Reg.	PQ20WZ51 (IC0553)		
CHG-Ladestromsteuerung	MM6564XFBE (IC0001)		
Audio			
Audioverarbeitung	HA118193F (IC0401) [VM-H755LE] LA7458W (IC0401) [VM-E558LE/E555LE/E553LE]	HA118193F (IC0401) [VM-H765LE/H665LE] LA7458W (IC0401) [VM-H768LE/E568LE/E565LE/E563LE]	LA7458W (IC0401)
Lautsprecher-Verstärker	TDA7052AT (IC0402S) [VM-H755LE] Nicht vorhanden [VM-E558LE/E555LE/E553LE]	TDA7052AT (IC0461S) [VM-H765LE/H665LE] Nicht vorhanden [VM-H768LE/E568LE/E565LE/E563LE]	Nicht vorhanden
Audio-Matrix	NJM2112V (IC0403S) [VM-H755LE] Nicht vorhanden [VM-E558LE/E555LE/E553LE]	NJM2112V (IC0471S) [VM-H765LE/H665LE] Nicht vorhanden [VM-H768LE/E568LE/E565LE/E563LE]	Nicht vorhanden
Elektronischer Sucher (EVF) und LCD			
EVF-Videoverstärker/Vertikale und horizontale Ablenkung	HA118179F (IC2001)	In dem EVF (elektronischer Sucher)	
LCD-Schalter	TL5001CD (IC5401, IC5501)	TL5001CD (IC5501)	Nicht vorhanden
LED-Steuerung	NJM2406F (IC5502)	Nicht vorhanden	Nicht vorhanden

Vorrichtungen und Bänder für die Einstellung

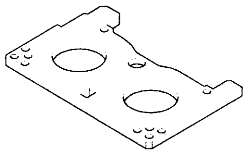
1. Abgleichband
20HSC-3: Nr. 7099232



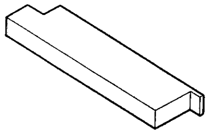
2. Cassetten-Drehmomentmesser
SRK-ST-232: Nr. 7099236
SRK-ST-212: Nr. 7099402



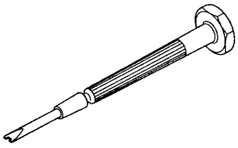
3. Hauptmeßlehre
Nr. 7099237



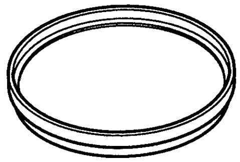
4. Wickeltellerhöhen-Einstellvorrichtung
Nr. 7099238



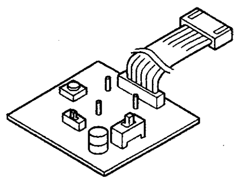
5. Spezialtreiber
Nr. 7099239



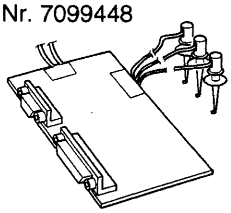
6. C12 Lichtbalancefilter
Nr. 7099369



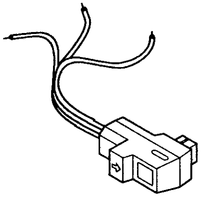
7. ATF-R Vorrichtung *(*1, *2)*
Nr. 7099461



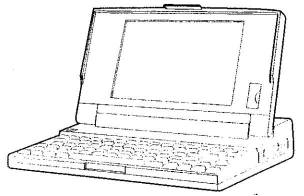
8. DSP-R Vorrichtung
Nr. 7099448



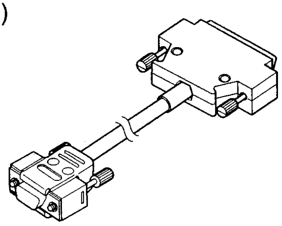
9. DSP AV Ausgangsvorrichtung
Nr. 7099456



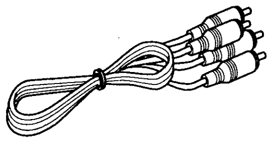
10. Personal-Computer
[Im Fachhandel erhältlich]



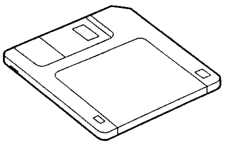
11. Personal-Computer-Kabel
RS232C (9-Stift oder 25-Stift)
Gerader Typ
[Im Fachhandel erhältlich]



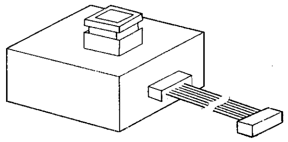
12. AV Ausgangskabel *(*3)*
[Mitgeliefertes Zubehör]



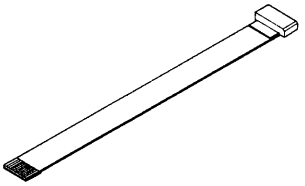
13. Diskette für Einstellung
[Neue Vorrichtung]
Nr. TP12111



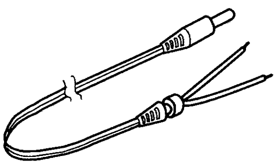
14. 8 - 20poliges Verlängerungskabel
[Neue Vorrichtung]
Nr. TS15411



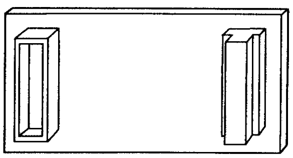
15. 4-Stift Verlängerungskabel
Nr. 7069203



16. ODC-Gleichstromkabel
[Neue Vorrichtung]
Nr. TE13171



17. 80-polige Erweiterungsplatte
[Neue Vorrichtung]
Nr. JP25461



Vorsichtsmaßnahmen hinsichtlich der Vorrichtungen
**1*: Immer den Schalter SW3 auf der ATF-R Vorrichtung auf ON stellen.
**2*: Die ATF Vorrichtung (Nr. 7099386) kann ebenfalls anstelle der ATF-R Vorrichtung für die Einstellung dieses Modells verwendet werden.
**3*: Entweder das Mono- oder Stereo-AV-Ausgangskabel kann verwendet werden.

Verwendung der Verlängerungskabel und Vorrichtungen

Bezeichnung der Verlägerungskabel	Teile Nr.	Verwendung
8 - 20poliges Verlängerungskabel	TS15411	Dient für den elektrischen Abgleich. Wird zwischen PG905 der VCA-Leiterplatte und der DSP-Ausgangslehre (20polig) angeschlossen. Siehe Abb. 1-1 auf Seite 3-1.
4-Stift Verlängerungskabel	7069203	Installiert zwischen der VCA-Leiterplatte und dem Modusschalter (Bandlaufwerk-Statusschalter)
ODC-Gleichstromkabel	TE13171	Stromversorgungskabel für Einstellung des Stromabschaltpegels (ODC). Siehe Abb. 1-1 auf Seite 3-1. Positiv: Schwarz Negativ: Schwarz und Weiß
80polige Erweiterungsplatte	JP25461	Eingebaut zwischen der VCA-Leiterplatte und der CON-Leiterplatte.

Wartungsposition

Hinweise:

1. Falls die Frontdeckeleinheit an die VCA-Leiterplatte angeschlossen ist, kann die mitgelieferte Fernbedienung für die Bedienung des Video-Kamerarecorders verwendet werden, ohne daß die CON-Leiterplatte angeschlossen werden muß.
2. Der Videorecorderblock kann bei ausgebautem Kamerachassis betrieben werden.

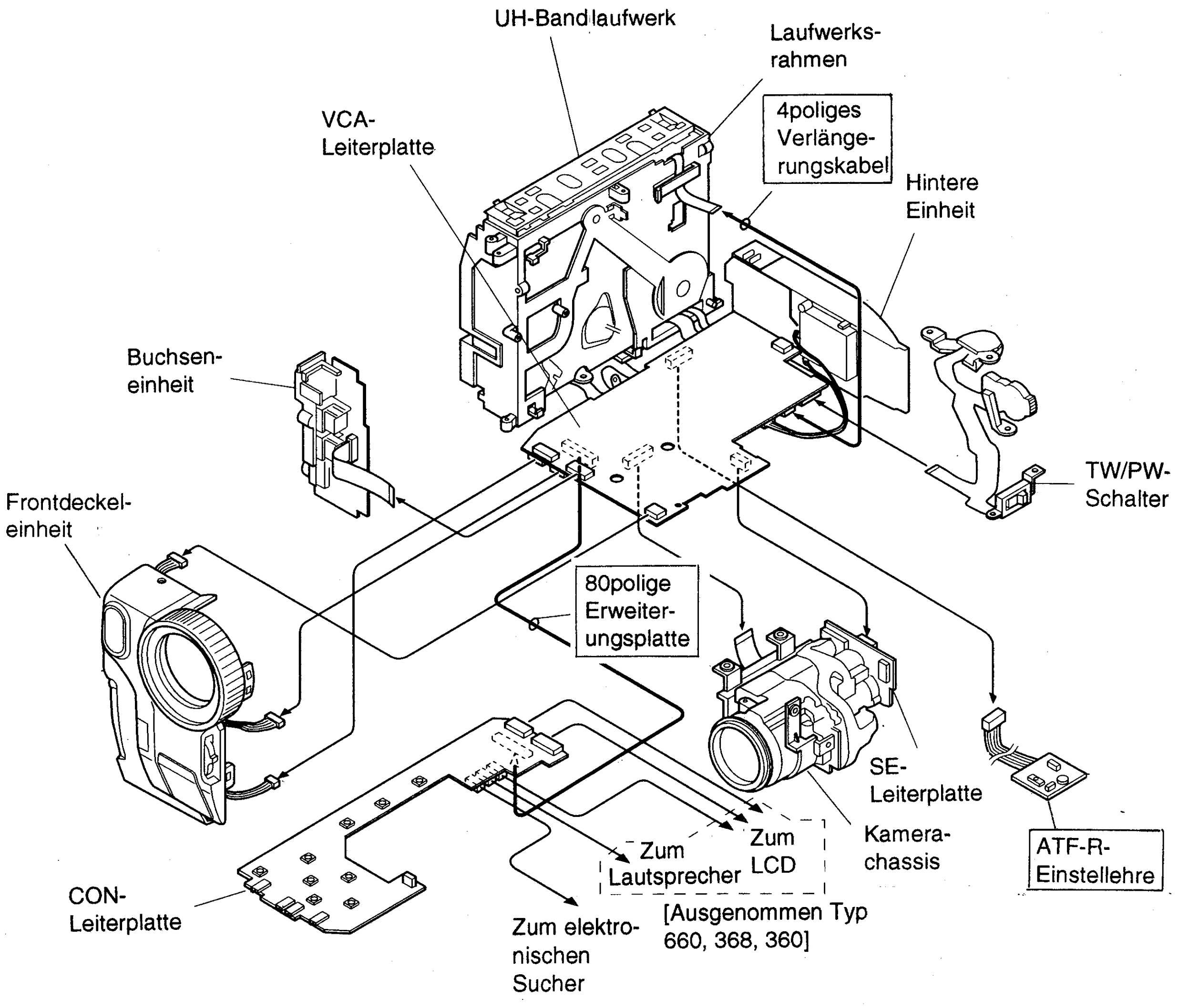

UH-Bandlaufwerk
Laufwerks-rahmen
VCA-Leiterplatte
4poliges Verlänge-rungskabel
Hintere Einheit
Buchsen-einheit
Frontdeckel-einheit
TW/PW-Schalter
80polige Erweiter-ungsplatte
SE-Leiterplatte
Kamera-chassis
ATF-R-Einstellehre
Zum Lautsprecher
Zum LCD
[Ausgenommen Typ 660, 368, 360]
CON-Leiterplatte
Zum elektro-nischen Sucher

Abb. 1-1 Anschlußdiagramm für Verlängerungskabel und Einstellehre

Wartungsanleitung-Abkürzungsliste

A	
ACC	Automatic Color Control
A/D	Analog-to-Digital Converter
ADD	Adder
ADP.	Adapter (AC Adapter)
ADRS	Address
A.DUB	Audio Dubbing
AF	Automatic focus (Autofocus)
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AGC KILLER	AGC Killer Voltage
AI	Automatic Intelligence
AIC	Automatic Iris Control
ALC	Automatic Level Conrol
AMP	Amplifier
APC	Automatic Phase Control
ASBL	Assemle (Phase Matching)
ATRS	Auto Tape Recording System
AUD.	Audio
AUX	Auxiliary

B	
B (BLU)	Color Signal Blue
BATT.	Battery
BF	Burst Flag
BG	Burst Gate or Back Ground
BGP	Burst Gate Pulse
BLC	Backlight Compensation
BLK	Blanking
BPF	Bandpass Filter
BUF.	Buffer Amplifier
B-YL	Color Difference Signal B-YL

C	
C (CHROMA)	Chrominance Signal
CAM	Camera
CAPST.	Capstan
CARRI.	Carrier
CATV	Cable TV
C.BLK	Composite Blanking
CCD	Charge Coupled Device
CDS	Correlated Double Sampling
C.FG (CFG)	Capstan Frequency Generater
C.FREE RUN	Capstan Free Run
CG	Character Generator
CH (Ch or ch)	Channel
CHARA.	Character
CHD	Camera Horizontal Drive Pulse
C.MEMORY	Counter Memory
CNR	Chroma Noise Reducer
COM.	Common
COMPA.	Comparator
COMPE.	Compensator
COMP-EXP	Compressor-Expander
COMPO	Composite
CONT.	Control
CONV.	Converter
COUNT.	Counter
CP	CP
C.PAUSE	Camp Pulse
C/R	Capacitor/Resistor
C.RESET	Countor Reset or Camera Reset
C.REVERSE	Count Reverse
CS	Communication Signal
CST	Cassette
C.SYNC	Composite Synchronizing Signal
CTL	Control Track Pulse (Control)
CYL	Cylinder

D	
D. (Digital)	Digital
DA	Double Azimuth
D/A	Digital to Analog Converter
D-D	Direct Drive
DEEMPHA.	Deephasis
DEF	Deflefction
DEMOD.	Demodulator
DET	Detector
DIFF. AMP	Differential Amplifier
DISP.	Display
DL	Delay Line
DO	Dropout
DOC	Dropout Compensator
DSP	Digital Signal Processor
DUB	Dubbing
DV	Digital Video Format
DVD	Digital Video Disk
D-VHS	Digital VHS
D/W	Dark/White
D.ZOOM (DZ)	Digital Zoom

E	
EAROM (EA-ROM)	Electrically Alterable Read Only Memory
E-E	Electronic-to-Electronic
EEPROM (EEP-ROM)	Electrical Erasable Proframmed
EIS (E.I.S.)	Electronic Image Stabilizer
EMPHA. (EMPH)	Emphasis
EQ	Equalizer
ESS	End Sensor Supply (Supply End Sensor)
EST	End Sensor Take-up (Take-up End Sensor)
EVF	Electronic Viewfinder
EXT.	External
E.ZOOM	Electrolical Zoom

F	
F.ADV	Frame Advance
FB	Feed back
FE	Full Erase
FF (F/F)	Flip Flop
F.FWD	Fast Forward
FG	Frequency Generator
FM	Frequency Modulation
FREQ.	Frequency
fsc	Sub Carrier Frequency
F/V	Frequency-to-Voltage Converter
FWD	Forward

G	
G (GRN)	B (BLU) Color Signal Green
GEN.	Generator
GND	Ground

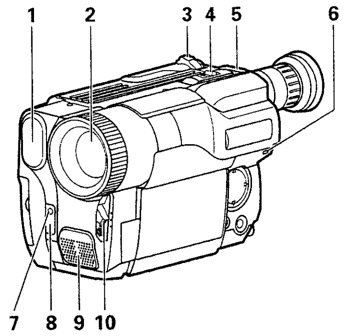
H	
H (HORIZ.)	Horizontal
HB	Hi-Band
HBF	Horizontal Burst Flag
HD	Horizontal Drive

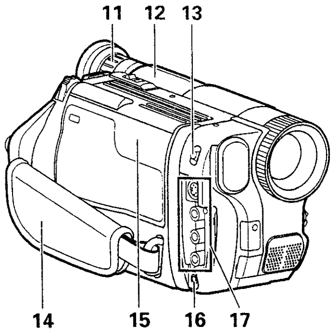
H	
Hi-Fi	High Fidelity
HPF	High-pass Filter
HSW	Head Switch
I	
IF	Intermediate Frequency
INDI.	Indicator
INST.	Instant
INT.	Internal
INV.	Inverter
I/O	In/Out (Input/Output)
IR	Infrared Rays
L	
LB	Low-Band
LCD	Liquid Crystal Dissplay
LIN.	Linear
LM	Loading Motor
LNC	Line Noise Canceller
LOG	Logarithm
LP	Long Play
LPF	Low-pass Filter
L/R	Left/Right
LUMA	Luminance
M	
MAN	Manual
M.BRAKE	Main Brake
M.CUT	Monitor Cut
MEM.	Memory
MIC	Microphone
MIX	Mixer
MMV	Monostable Multivibator
MOD.	Modulator
MPEG	Noving Picture coding Experts Group
M.STATE	Mechanism State
M.STOP	Memory Stop
N	
NEG	Negative
NFB	Negative Feed Back
NOR. (NORM)	Normal
NR	Noise Reduction
O	
OB	Optial Black
OSC	Oscillator
OSD	On-Screen Display
P	
PB (PLAY)	Playback
PCM	Pulse Code Modulation
PG	Pulse Generator
PLL	Phase Locked Loop
POS.	Positive
PROG.	Program
PROT.	Protector
PWM	Pulse Width Modulation
R	
R (RED)	Color Signal Red
RAM	Random Access Memory
REC	Record
RECT.	Rectifier
REF.	Reference
REG.	Regulator
REV	Review
REW	Rewind

R	
RF	Radio Frequency
ROM	Read Only Memory
RSS	Reel Sensor Supply (Supply Reel Sensor)
RST	Reel Sensor Take-up (Take-up Reel Sensor)
R-YL	Color Difference Signal R-YL
S	
SAW	Sawtooth Signal
SC1 (0°)	3.58MHz Subcarrier Signal 1 (0-degree Phase Shifted)
SC2 (90°)	3.58MHz Subcarrier Signal 2 (90-degree Phase Shifted)
SEPA. (SEP)	Separator
S/H	Samle and Hold
SP	Standard Play or Speaker
S.REEL	Supply Reel Sensor
SRCH	Search
SRV	Servo
STABI.	Stabilizer
S.TRACK	Slow Tracking
STBY	Standby Mode
S-VHS	Super VHS
SW	Switch
SW30Hz	30Hz Head Switching Pulse
(15 or 25Hz)	(15 or 25Hz Head Switching Pulse)
SYNC	Synchronizing signal
SYS.CON	System Control
T	
T (TELE)	Telephoto Angle
TAPE +	Recording Hi-8 Quality Image on Normal Tape
TBC	Time Base Corrector
T.BRAKE	Take-up Brake
TP	Test Point
T.REEL	Take-up Reel Sensor
TRS	Transfer
V	
V (VERT.)	Vertical
V.AGC	AGC Voltage
VCO	Voltage Controlled Oscillator
VCXO	Voltage Controlled Crystal Oscillator
VD	Vertical Drive
V.DUB	Video Dubbing
VHS	Video Home System
VOL.	Volume
VP	Voltage Pulse
W	
W (WIDE)	Wide Angle
WHD	Wide Horizontal Drive
WHT	Color Sifnal White
WHT BAL.	White Balance
Y	
Y	Luminance Signal
Y/C	Luminance/Chrominance
YEL (Ye)	Color Signal Yellow
YL	Luminance Signal (Low Component)

Auszüge aus der Bedienungsanleitung (für VM-H765LE/H665LE/E565LE/H660E/E360E)

Bedienungselemente





1. **Eingebaute Gleichstromleuchte (Seite 54) (für VM-H765LE)**
2. **Objektivtür (Seite 24)**

Die Objektivtür öffnet automatisch, wenn der Video-Kamerarecorder auf den Kameramodus (CAM) eingestellt ist.

3. **Regler für motorbetriebenes Zoomobjektiv (Seite 32)**
4. **Cassetten-Auswurfschalter (Seite 18)**
5. **Öse für Schultergurt (Seite 12)**
6. **Ladeanzeige (Seite 13)**
7. **Aufnahmeanzeige (Seite 24)**
8. **Infrarot-Empfänger (Seite 24)**
9. **Mikrofon**
10. **CAM/OFF/VIDEO-Stromschalter (Seite 24)**

CAM: Diese Position für Aufnahmen verwenden.

VIDEO: Diese Position für Wiedergaben verwenden.

11. **Dioptrienregler (Seite 11)**

Damit können Sie das Sucherokular gemäß Ihrer Sehschärfe einstellen.

12. **Elektronischer Sucher (Seite 11)**
13. **Schalter für Gleichstromleuchte (Seite 54) (für VM-H765LE)**

Mit diesem Schalter können Sie die Gleichstromleuchte ein- (ON), aus- (OFF) oder auf automatisch (AUTO) schalten.

14. **Handgurt (Seite 12)**
15. **Cassettenhalter (Seite 18)**

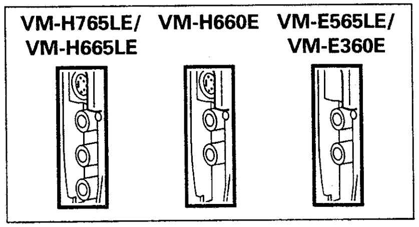
Hier ist die Cassette einzusetzen.

16. **Mikrofonbuchse (für VM-H765LE/VM-H665LE/VM-E565LE)**

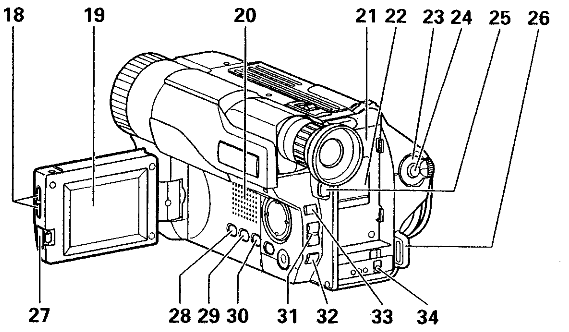
Schließen Sie ein externes Mikrofon (im Fachhandel erhältlich) an diese Buchse an.

17. **Audio/Video-Ausgangsbuchsen (unter der Buchsenabdeckung) (Seite 49)**

Schließen Sie das mitgelieferte AV-Kabel an diese Buchse und die AV-Eingangsbuchse Ihres Fernsehers oder Videorecorders an. Die Buchsen an dem Video-Kamerarecorder unterscheiden sich in Abhängigkeit von dem Modell wie folgt:
Die Modelle VM-H765LE/VM-H665LE weisen eine S-VIDEO-Buchse und Stereo-Audio-Ausgangsbuchsen auf.
Das Modell VM-H660E weist eine S-VIDEO-Buchse und eine Mono-Audio-Ausgangsbuchse auf.
Die Modelle VM-E565LE/VM-E360E weisen jeweils eine Mono-Audio-Ausgangsbuchse auf.



Bedienungselemente



18. **LCD-Helligkeitsregler (Seite 9) (für die Modelle VM-H765LE/VM-H665LE/VM-E565LE)**
19. **2,5-Zoll LCD-Monitor (Seite 9) (für die Modelle VM-H765LE/VM-H665LE/VM-E565LE)**
20. **Lautsprecher (Seite 9) (für die Modelle VM-H765LE/VM-H665LE/VM-E565LE)**
21. **Stromversorgungs-Anbauteil (Seite 16)**
22. **Batteriefach für Uhr (Seite 8)**
23. **Stromhilfsschalter (Seite 24)**

STANDBY: Durch Drücken der Start/Stopptaste wird mit der Aufnahme begonnen.

LOCK: Der Video-Kamerarecorder schalten nicht auf den Aufnahmemodus, wenn sie die Start/Stopptaste drücken.

24. **Start/Stopptaste (Seite 24, Seite 28)**

Diese Taste arbeitet als Aufnahme-Start/Stopptaste in dem CAM-Modus und als Wiedergabe-Pausetaste in dem VIDEO-Modus.

25. **Akku-Auswurfhebel [BATT.EJECT] (Seite 14)**

Verschieben und halten Sie diesen Hebel, um den Akku von dem Video-Kamerarecorder abnehmen zu können.

26. **Öse für Schultergurt (Seite 12)**
27. **Öffnungstaste für LCD-Monitor (Seite 14) (für die Modelle VM-H765LE/VM-H665LE/VM-E565LE)**

Diese Taste dient für das Öffnen des LCD-Monitors.

28. **Datumstaste (Seite 29)**

Verwenden Sie diese Taste für die Einstellungen oder die Anzeige des Datums.

29. **Titeltaste (Seite 43)**

Verwenden sie diese Taste für das Kreieren oder Anzeigen eines Titels.

30. **Effekttaste (Seite 34)**

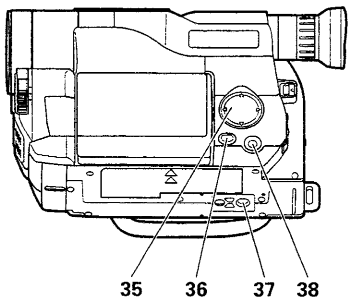
Diese Taste dient für die digitale Verarbeitung von Bildern sowie für die Wiedergabe von mit Digitaleffekten versehenen Bildern.

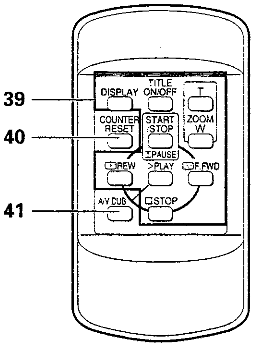
31. **Tasten für Scharfeinstellung [FOCUS] (Seite 32)**

CAM-Modus: Dienen für das Umschalten zwischen automatischer Scharfeinstellung und manueller Scharfeinstellung oder für die Scharfeinstellung in dem manuellen Modus.

Für die Modelle VM-H765LE/VM-H665LE/VM-E565LE: In dem VIDEO-Modus können Sie mit diesen Tasten die Lautstärke der Wiedergabe einstellen (siehe Seite 26).

Bedienungselemente





32. Taste für Gegenlichtkompensation [BLC] (Seite 40)
Wenn Sie ein Motiv mit heller Beleuchtung aufnehmen, halten Sie diese Taste gedrückt, um für das Gegenlicht bei der Aufnahme zu kompensieren.

33. Menütaste [MENU] (Seite 20)
Dient für die Anzeige des Menüs.

34. Gleichstrom-Eingangsbuchse (Seite 17)
Verwenden Sie diese Buchse für die Stromversorgung Ihres Video-Kamerarecorders über ein Netzgerät oder die Batterie Ihres Fahrzeuges.

35. Bandlaufwerk- und Menüeinstellungstasten (Seite 20, Seite 26)

Bandlaufwerktasten:

▶ PLAY: Für die Wiedergabe von dem Magnetband.

◀◀ REW: Für den Rücklauf des Magnetbandes.

■ STOP: Für das Stoppen des Magnetbandes.

▶▶ FWD: Für den schnellen Vorlauf des Magnetbandes.

Menüeinstellungstasten:
Verwenden Sie diese Tasten für die Wahl der Menüposten und die Einstellung der Details.

36. Ein/Ausblendungstaste [FADE] (Seite 36)
Verwenden Sie diese Taste für die Wahl des gewünschten Ein/Ausblendungsmodus.

37. Stativ-Gewindebohrung

38. Programm-AE-Taste [PROGRAM AE] (Seite 39) (für VM-H765LE/VM-H665LE/VM-E565LE/VM-H660E)
Verwenden Sie diese Taste, um den Belichtungsmodus zu ändern.

Fernbedienung

39. Fernbedienung für Video-Kamerarecorder
Die Tasten der Fernbedienung weisen die gleichen Funktionen wie die entsprechenden Tasten an dem Video-Kamerarecorder auf.

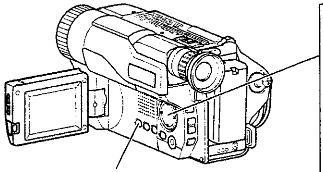
40. Zeitzählwerk-Rückstelltaste [COUNTER RESET] (nur an der Fernbedienung) (Seite 48)
Dient für die Rückstellung der Zeitzählung auf 0:00:00.

41. A/V-Kopierungstaste [A/V DUB] (nur an der Fernbedienung) (Seite 52)
Dient für das Kopieren der Audio- und Videosignale.

Einstellen von Datum/Uhrzeit

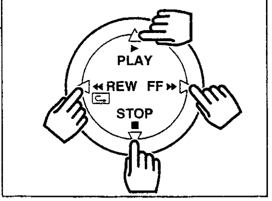
Datum und Uhrzeit können auf Band aufgezeichnet werden, um bei späterer Wiedergabe als Referenz zu dienen. Das derzeitige Datum und die Uhrzeit wie folgt einstellen.
Darauf achten, daß die derzeitige Zeit richtig angezeigt wird, bevor Sie mit der Aufnahme beginnen.

Hinweis: Unbedingt die Uhrbatterie einsetzen, bevor das Datum und die Zeit eingestellt werden. Obwohl Datum und Zeit auch eingestellt werden können, ohne daß die Uhrbatterie eingesetzt ist, verschwinden diese Anzeigen, wenn der für die Stromversorgung des Video-Kamerarecorders verwendete Akku abgenommen wird.

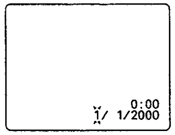


DATE-Taste

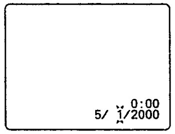
Wahltasten für Datum und Zeit



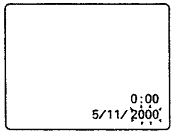
1. Den CAM/OFF/VIDEO-Schalter auf Position "CAM" stellen.
2. Die DATE-Taste drücken. "0:00" und "1/1/2000" erscheinen am Monitor, wobei die "1" blinkt.



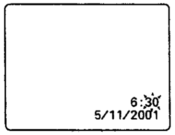
3. Die PLAY- oder STOP-Taste drücken, um das richtige Datum einzustellen. Drücken Sie die PLAY- oder die STOP-Taste, um die Zahl zu erhöhen bzw. zu vermindern. Wenn das richtige Datum angezeigt wird, die FF-Taste drücken.



4. Die PLAY- oder STOP-Taste drücken, um den richtigen Monat einzustellen. Wenn der richtige Monat angezeigt wird, die FF-Taste betätigen.



5. Die PLAY-, STOP- und FF-Tasten verwenden, um das richtige Jahr, die richtige Stunde und die richtige Minute zu wählen.



6. Nach richtiger Einstellung der Minutenanzeige die DATE-Taste drücken, um das Display zu ändern und die interne Uhr zu starten.
   Es wird empfohlen, daß Sie die DATE-Taste drücken, um die Zeit an ein Zeitsignal anzupassen.

Hinweis: Nachdem das Datum und die Zeit eingestellt wurden, erscheint "🕒 AUTO" und der Kamerarecorder tritt in den Modus für automatische Aufnahme des Datums ein. Siehe "Aufnahme des Datums" auf Seite 30.

■ **Berichtigung von Datum/Zeit nach dem Starten von Datum/Zeit**
1. Halten sie die DATE-Taste für mindestens drei Sekunden gedrückt: Der blinkende Cursor erscheint an dem Datum.
2. Berichtigen Sie die falsche Stelle, indem Sie die PLAY-, STOP- und FF-Tasten verwenden.

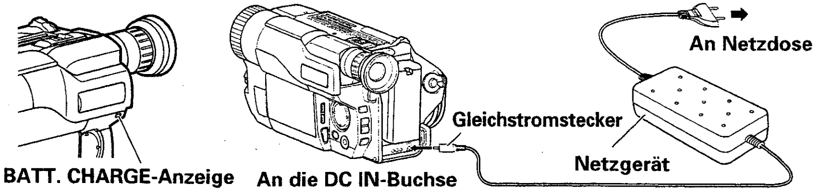
■ **Berichtigung von Datum/Zeit während des Programmierens**
1. Die FF-Taste wiederholt drücken, bis die falsche Stelle blinkt.
2. Berichtigen Sie die falsche Stelle, indem Sie die PLAY-, STOP- und FF-Tasten verwenden.

Laden des Akkus

Der erste Schritt besteht darin, daß der Akku für das Laden eingestellt wird. Für das Laden des Akkus, diesen an dem Video-Kamerarecorder anbringen und das Netzgerät VM-ACE5E anschließen.
Den Akku bei einer Temperatur von 10 ~ 30°C aufladen, um eine Beschädigung des Akkus zu vermeiden.

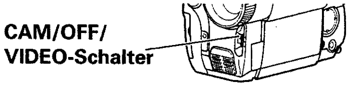
Hinweise:

- Dieser Video-Kamerarecorder arbeitet mit einem Lithium-Ionen-Akku wie z.B. dem VM-BPL13/VM-BPL30/VM-BPL60.
- Wir können fehlerfreien Betrieb des Video-Kamerarecorders nicht garantieren, wenn Sie andere als die vorgeschriebenen Akkus verwenden.



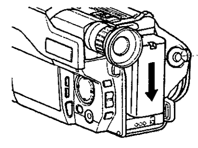
Den Akku auf einer ebenen Fläche aufladen, die frei von Vibrationen ist.

1. Achten Sie darauf, daß der CAM/OFF/VIDEO-Schalter auf Position OFF gestellt ist.



2. Den Akku an dem Video-Kamerarecorder anbringen.
   - Setzen Sie den Akku auf die Führungsbühne und schieben Sie ihn nach unten, damit er in den Video-Kamerarecorder paßt.

   Hinweis: Immer den Akku gemäß der hier beschriebenen Vorgänge anbringen. Durch Anbringen eines Akkus unter Kraftanwendung könnte dieser beschädigt werden.



3. Das Netzkabel des Netzgerätes an eine Netzdose anschließen.
4. Den Gleichstromstecker des Netzgerätes an die DC IN-Buchse des Video-Kamerarecorders anstecken.
   Das Laden beginnt innerhalb von fünf Sekunden. Während des Ladens blinkt oder leuchtet die BATT. CHARGE-Anzeige des Video-Kamerarecorders, um den Ladepegel als Referenz anzuzeigen.

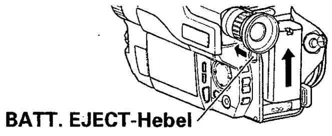
Hinweise:

- **Falls die BATT. CHARGE-Anzeige einmal alle zwei Sekunden blinkt, kann der Akku defekt sein.**
- **Die BATT. CHARGE-Anzeige leuchtet nicht, wenn das Netzgerät defekt ist.**
- Sie können den Akku auch verwenden, bevor dieser vollständig aufgeladen ist.
- Nach dem vollständigen Aufladen des Akkus, leuchtet die BATT. CHARGE-Anzeige an dem Video-Kamerarecorder. Wird der vollständig aufgeladene Akku von dem Video-Kamerarecorder abgenommen und danach wieder angebracht, schaltet der Video-Kamerarecorder auf den Lademodus, so daß die BATT. CHARGE-Anzeige blinkt. Es wird einige Zeit benötigt, bis der Video-Kamerarecorder auf den Status für vollständiges Aufladen schaltet.
- Ein Aufladen bei niedrigen Temperaturen reduziert die Ladekapazität.

5. Nach dem vollständigen Aufladen ist der Gleichstromstecker des Netzgerätes von dem Video-Kamerarecorder abzuziehen.
6. Den Netzstecker von der Netzdose abziehen.
7. Den Akku von dem Video-Kamerarecorder abnehmen.
   - Nach der Verwendung den Akku immer von dem Video-Kamerarecorder abnehmen.
   - Es erfolgt kein Aufladen, wenn der CAM/OFF/VIDEO-Schalter des Video-Kamerarecorders auf CAM oder VIDEO gestellt ist. Falls jedoch die Aufnahmepause in dem CAM-Modus für länger als 5 Minuten andauert, schaltet der Video-Kamerarecorder automatisch aus, worauf das Aufladen beginnt.
     Falls der Hilfsstromschalter auf LOCK gestellt ist, erfolgt das Aufladen auch bei auf Position CAM gestelltem CAM/OFF/VIDEO-Schalter.
   - Falls der Gleichstromstecker abgezogen wird, wenn der Akku angebracht und der CAM/OFF/VIDEO-Schalter auf CAM oder VIDEO gestellt ist, schaltet der Video-Kamerarecorder einmal aus, worauf er jedoch wiederum automatisch einschaltet. Achten Sie darauf, daß der Akku entladen wird, wenn der Video-Kamerarecorder in diesem Zustand belassen wird.

■ Entfernen des Akkus

Den BATT. EJECT-Hebel in Richtung des Pfeiles schieben und festhalten; danach den Akku nach oben schieben und abnehmen.



■ Referenz des Ladepegels

Sie können den ungefähren Ladepegel des Akkus feststellen, indem Sie beobachten, wie die BATT. CHARGE-Anzeige des Video-Kamerarecorders blinkt oder leuchtet.

Ladepegel	BATT. CHARGE-Anzeige
0-50% Ladung	Blinkt einmal in Intervallen von etwa einer Sekunde.
50-75% Ladung	Blinkt zweimal in Intervallen von etwa einer Sekunde.
Mehr als 75% Ladung	Blinkt dreimal in Intervallen von etwa einer Sekunde.
Volle Ladung	Dauerlicht

■ Ladedauer

Akku / Ladung	VM-BPL13	VM-BPL30	VM-BPL60
Volle Ladung	3 St.	5 St. 30 min.	9 St. 50 min.
75% Ladung	1 St. 50 min.	3 St. 40 min.	7 St.

■ Betriebsdauer

Die Betriebsdauer des Video-Kamerarecorders hängt davon ab, wie häufig die Stromversorgung ein/ausgeschaltet, die Start/Stopp-Taste betätigt bzw. das Zoom verwendet wird.

Kontinuierliche Aufnahme

EVF: Bei Verwendung des Suchers
LCD: Bei Verwendung des LCD-Monitors

Akku	VM-BPL13	VM-BPL30	VM-BPL60
VM-H765LE			
EVF	2 St. 40 min.	5 St. 55 min.	12 St.
LCD	2 St. 15 min.	5 St.	10 St. 20 min.
VM-H665LE			
EVF	2 St. 45 min.	6 St. 5 min.	12 St. 20 min.
LCD	2 St. 20 min.	5 St. 15 min.	10 St. 40 min.
VM-E565LE			
EVF	2 St. 50 min.	6 St. 15 min.	12 St. 40 min.
LCD	2 St. 25 min.	5 St. 30 min.	11 St. 10 min.
VM-H660E			
EVF	2 St. 50 min.	6 St. 15 min.	12 St. 40 min.
VM-E360E			
EVF	2 St. 50 min.	6 St. 15 min.	12 St. 40 min.

Typische Aufnahme

EVF: Bei Verwendung des Suchers
LCD: Bei Verwendung des LCD-Monitors

Akku	VM-BPL13	VM-BPL30	VM-BPL60
VM-H765LE			
EVF	1 St. 35 min.	3 St. 30 min.	7 St. 10 min.
LCD	1 St. 20 min.	3 St.	6 St. 10 min.
VM-H665LE			
EVF	1 St. 40 min.	3 St. 35 min.	7 St. 20 min.
LCD	1 St. 25 min.	3 St. 5 min.	6 St. 20 min.
VM-E565LE			
EVF	1 St. 45 min.	3 St. 45 min.	7 St. 35 min.
LCD	1 St. 30 min.	3 St. 15 min.	6 St. 40 min.
VM-H660E			
EVF	1 St. 45 min.	3 St. 45 min.	7 St. 35 min.
VM-E360E			
EVF	1 St. 45 min.	3 St. 45 min.	7 St. 35 min.

Hinweise zum Akku

- Es wird empfohlen, daß der Akku entladen belassen wird, wenn er nicht verwendet wird. Den Akku immer erst vor der Verwendung aufladen.
- Vermeiden Sie die Lagerung eines voll aufgeladenen Akkus, und lagern Sie den Akku niemals an einem Ort mit hoher Temperatur; der Akku könnte beschädigt werden.

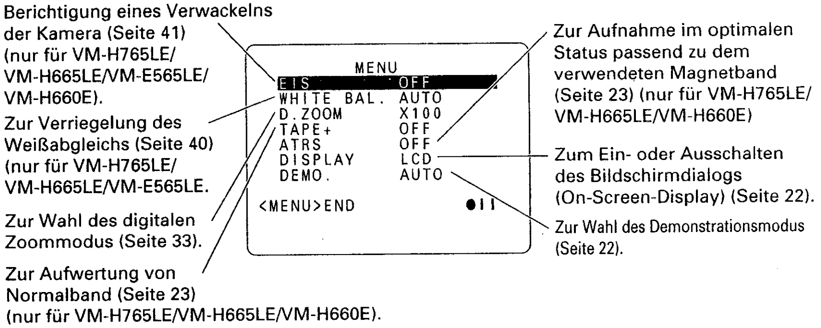
(fortgesetzt auf der nächsten Seite)

In den Menüanzeigen wählbare Posten

Die wählbaren Posten hängen von der Position des CAM/OFF/VIDEO-Schalters ab.
Hinweis: Die Menüanzeigen des Modells VM-H765LE werden für die folgenden Erläuterungen verwendet. Manche Posten erscheinen in Abhängigkeit von dem Modell vielleicht nicht.

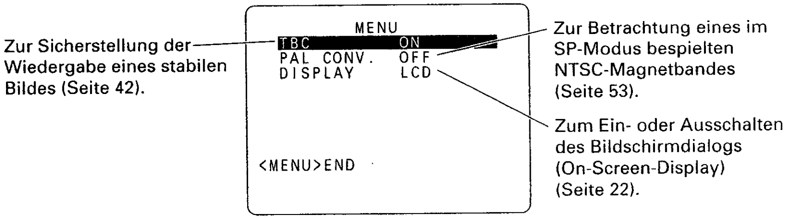
Im CAM-Modus wählbares Menü

Wenn Sie die MENU-Taste drücken, erscheint die folgende Menüanzeige:


MENU
EIS OFF
WHITE BAL. AUTO
D.ZOOM X100
TAPE+ OFF
ATRS OFF
DISPLAY LCD
DEMO. AUTO
<MENU>END
Berichtigung eines Verwackelns der Kamera (Seite 41) (nur für VM-H765LE/VM-H665LE/VM-E565LE/VM-H660E).
Zur Verriegelung des Weißabgleichs (Seite 40) (nur für VM-H765LE/VM-H665LE/VM-E565LE.
Zur Wahl des digitalen Zoommodus (Seite 33).
Zur Aufwertung von Normalband (Seite 23) (nur für VM-H765LE/VM-H665LE/VM-H660E).
Zur Aufnahme im optimalen Status passend zu dem verwendeten Magnetband (Seite 23) (nur für VM-H765LE/VM-H665LE/VM-H660E)
Zum Ein- oder Ausschalten des Bildschirmdialogs (On-Screen-Display) (Seite 22).
Zur Wahl des Demonstrationsmodus (Seite 22).

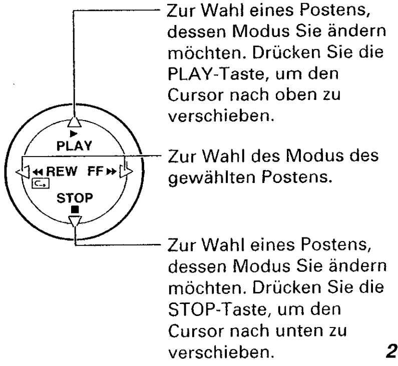
Im VIDEO-Modus wählbares Menü

Drücken Sie die MENU-Taste, um die folgenden Posten anzuzeigen:


MENU
TBC ON
PAL CONV. OFF
DISPLAY LCD
<MENU>END
Zur Sicherstellung der Wiedergabe eines stabilen Bildes (Seite 42).
Zur Betrachtung eines im SP-Modus bespielten NTSC-Magnetbandes (Seite 53).
Zum Ein- oder Ausschalten des Bildschirmdialogs (On-Screen-Display) (Seite 22).

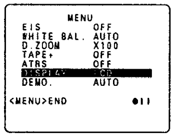
Wahl und Einstellung der Posten

1. Drücken Sie die MENU-Taste.
2. Drücken Sie die PLAY- oder STOP-Taste, um den gewünschten Posten zu wählen.
3. Verwenden Sie die FF- oder REW-Taste, um den gewünschten Modus zu wählen.
4. Drücken Sie erneut die MENU-Taste, um den Modus zu bestimmen.


PLAY
REW
FF
STOP
Zur Wahl eines Postens, dessen Modus Sie ändern möchten. Drücken Sie die PLAY-Taste, um den Cursor nach oben zu verschieben.
Zur Wahl des Modus des gewählten Postens.
Zur Wahl eines Postens, dessen Modus Sie ändern möchten. Drücken Sie die STOP-Taste, um den Cursor nach unten zu verschieben.

Ein- oder Ausschalten des Bildschirmdialogs (On-Screen-Display)

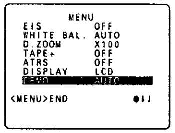
Unter Verwendung der Menüwahl können Sie die Statusanzeige des Video-Kamerarecorders während der Aufnahme und Wiedergabe aus- und danach wieder einschalten.
Hinweis für VM-H660E/VM-E360E: Da dieses Modell nicht mit einem LCD-Monitor ausgestattet ist, erscheint "EVF" anstelle von "LCD" für den Menüposten "DISPLAY".


MENU
EIS OFF
WHITE BAL. AUTO
D.ZOOM X100
TAPE+ OFF
ATRS OFF
DISPLAY LCD
DEMO. AUTO
<MENU>END

1. Stellen Sie den CAM/OFF/VIDEO-Schalter auf die Position CAM.
2. Drücken Sie die MENU-Taste.
3. Drücken Sie die PLAY- oder STOP-Taste, um "DISPLAY" zu wählen.
4. Drücken Sie die REW- oder FF-Taste, um den gewünschten Modus zu wählen:
   LCD (oder EVF): Informationen über die Restbandlänge, den Zeitzähler usw. werden am Monitorbildschirm angezeigt.
   LCD/LINE (oder EVF/LINE): "M" wird neben dem Zeitzähler angezeigt ("Memory-Funktion" auf Seite 48). Wenn Sie LCD/LINE (oder EVF/LINE) spezifizieren, können Sie die im Speicher (Memory) abgelegten und am Monitorbildschirm angezeigten Informationen betrachten, die dem an einem angeschlossenem Fernseher angezeigten Wiedergabebild überlagert werden.
   OFF: Die Informationen über die Restbandlänge, den Zeitzähler usw. werden nicht angezeigt.
   Hinweise:
   - Der restliche Akkuspannungspegel wird angezeigt, wenn Sie einen Akku als Stromquelle verwenden.
   - Das Datum und der Aufnahmestatus werden am Monitorbildschirm angezeigt.
5. Drücken Sie die MENU-Taste.

Demonstrationsmodus

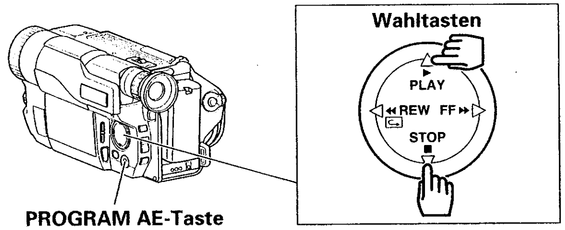
Unter Verwendung des Menüs können Sie den in diesem Video-Kamerarecorder eingestellten Demonstrationsmodus einschalten.


MENU
EIS OFF
WHITE BAL. AUTO
D.ZOOM X100
TAPE+ OFF
ATRS OFF
DISPLAY LCD
DEMO. AUTO
<MENU>END

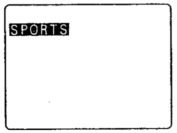
1. Stellen Sie den CAM/OFF/VIDEO-Schalter auf Position CAM.
2. Drücken Sie die MENU-Taste.
3. Drücken Sie die PLAY- oder STOP-Taste, um "DEMO" zu wählen.
4. Drücken Sie die REW- oder FF-Taste, um den gewünschten Modus zu wählen:
   AUTO: Falls Sie den Video-Kamerarecorder für 10 Minuten belassen, ohne eine Cassette einzusetzen, wenn das Datum nicht eingestellt wurde oder die Uhrbatterie verbraucht ist, wird automatisch der Demonstrationsmodus aktiviert.
   START: Der Demonstrationsmodus startet, nachdem Sie die MENU-Taste gedrückt und START spezifiziert haben.
   OFF: Der Demonstrationsmodus ist ausgeschaltet.
5. Drücken Sie die MENU-Taste.
   Hinweis: Der Demonstrationsmodus wird fortgesetzt, bis Sie die Stromversorgung ausschalten oder die MENU-Taste drücken und "AUTO" oder "OFF" spezifizieren.

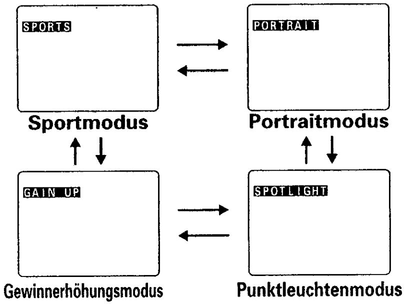
Verwendung der PROGRAM AE-Taste (für VM-H765LE/VM-H665LE/VM-E565LE/VM-H660E)

Dieser Video-Kamerarecorder kann die Verschlußgeschwindigkeit und die Blende einfach in Abhängigkeit von den Bedingungen des Objektes, der Aufnahmesituation oder dem Aufnahmezweck einstellen. Er kann auch alle diese Bedingungen in Abhängigkeit von der Helligkeit des Objektes einstellen (konventionelle Programm-AE). Drükcen Sie die PROGRAM AE-Taste, um den Aufnahmemodus gemäß dem aufzunehmenden Motiv und der Aufnahmebedingungen einzustellen.



1. Drücken Sie die PROGRAM AE-Taste: **SPORTS** erscheint am Monitor.
2. Drücken Sie die PLAY- oder STOP-Taste, um den gewünschten Aufnahmemodus zu wählen.





Keine Anzeige: Vollautomatischer Modus
In diesem Modus stellt der Video-Kamerarecorder die Verschlußzeit und die Blende automatisch in Abhängigkeit von der Helligkeit des Motivs ein. Verwenden Sie daher diesen Modus für normale Aufnahmen.

SPORTS: Sportmodus
Wählen Sie diesen Modus, wenn Sie schnell bewegte Objekte aufnehmen möchten, wie z.B. Golf- oder Tennisschläge usw. Das Objekt wird klar und ohne Unschärfen aufgezeichnet.

PORTRAIT: Portraitmodus
Wählen Sie diesen Modus für Portraitaufnahmen, bei welchen das Objekt aus einem unscharfen Hintergrund hervorsteht.

SPOTLIGHT: Punktleuchtenmodus (Spotlight)
Wählen Sie diesen Modus, wenn das Kontrastverhältnis des Objektes hoch ist und nur ein relativ kleiner Bereich beleuchtet wird.

GAIN UP: Gewinnerhöhungsmodus (Gain-up)
Wählen Sie diesen Modus für die Aufnahme von schlecht beleuchteten Objekten, wie z.B. einen dunklen Raum usw. Das gesamte Bild wird heller aufgezeichnet.

Arten der Unterschiede

	VM-H768LE(AU) VM-H768LE(SW)	VM-H765LE VM-H765LE(UK)	VM-H665LE	VM-H660E	VM-E568LE(AU) VM-E568LE(SW)
Monitor	LCD-Monitor/ Sucher	LCD-Monitor/ Sucher	LCD-Monitor/ Sucher	Sucher	LCD-Monitor/ Sucher
System	Hi-8	Hi-8	Hi-8	Hi-8	Nor-8
Audio	Mono	Stereo	Stereo	Mono	Mono
Eingebaute Gleichstrom-leuchte	Ja	Ja	Nein	Nein	Nein
EIS-Funktion	Ja	Ja	Ja	Ja	Nein
Tape +	Ja	Ja	Ja	Ja	Nein
Programm-AE	Automatisch/ Moduswahl	Automatisch/ Moduswahl	Automatisch/ Moduswahl	Automatisch/ Moduswahl	Auto

	VM-E565LE	VM-E563LE	VM-E368E(AU) VM-E368E(SW)	VM-E360E VM-E360E(UK)
Monitor	LCD-Monitor/ Sucher	LCD-Monitor/ Sucher	Sucher	Sucher
System	Nor-8	Nor-8	Nor-8	Nor-8
Audio	Mono	Mono	Mono	Mono
Eingebaute Gleichstrom-leuchte	Nein	Nein	Non	Non
EIS-Funktion	Ja	Nein	Non	Non
Tape +	Nein	Nein	Non	Non
Programm-AE	Automatisch/ Moduswahl	Automatisch/ Moduswahl	Auto	Auto

Kapitel 2 Demontage

1. Vor Beginn der Demontage

(1) Das Bandlaufwerk ist in dem Ladestoppstatus zu zerlegen und wieder zusammenzubauen, mit Ausnahme der folgenden Komponenten:
- o Cassettenfachdeckel
- o Obere Abdeckung
- o Teile des UH-Bandlaufwerkes

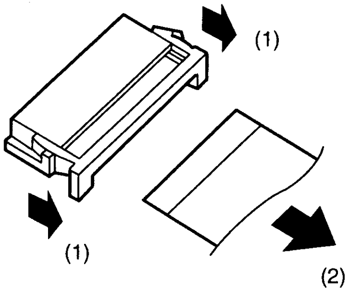
Hinweis: Nach dem Aus- oder Einbau des Cassettenfachdeckels oder der oberen Abdeckung, das Bandlaufwerk in den Ladestoppstatus zurückbringen.

(2) Für die manuelle Bedienung des Bandlaufwerkes (Entladen und Laden) siehe: "Manuelle Bedienung des Bandlaufwerkes".

(3) Die einzelnen Komponenten gemäß "1.1. Demontagevorgang" demontieren.

(4) Für den Zusammenbau sind die Demontagevorgänge sinngemäß umzukehren, wenn nicht anders angegeben.

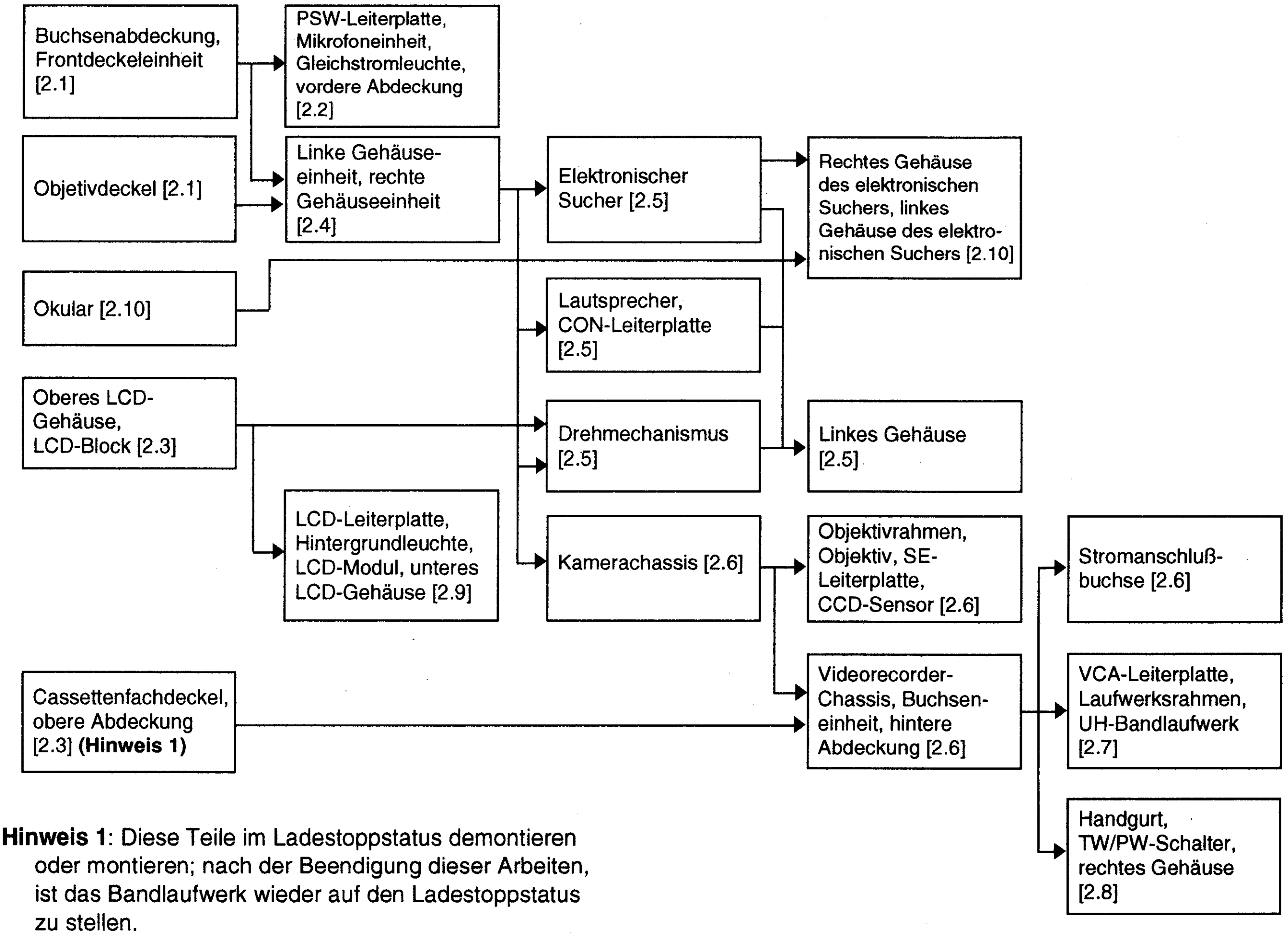
(5) Die Flachkabel von den Steckern mit Hilfe des in Abb. 1-1 gezeigten Vorganges abtrennen. Da viele der Leiterplatten in dem Video-Kamerarecorder durch Stecker an den Leiterplatten selbst angeschlossen sind. Unbedingt die DEMONTAGE befolgen, wenn die Leiterplatten ausgebaut werden.



(1) Die Verriegelungen des Steckers gleichzeitig an der linken und rechten Seite freigeben.
(2) Das Flachkabel herausziehen.

Abb. 1-1

1.1 Demontagevorgang


Buchsenabdeckung, Frontdeckeleinheit [2.1]
PSW-Leiterplatte, Mikrofoneinheit, Gleichstromleuchte, vordere Abdeckung [2.2]
Objetivdeckel [2.1]
Linke Gehäuseeinheit, rechte Gehäuseeinheit [2.4]
Elektronischer Sucher [2.5]
Rechtes Gehäuse des elektronischen Suchers, linkes Gehäuse des elektronischen Suchers [2.10]
Okular [2.10]
Lautsprecher, CON-Leiterplatte [2.5]
Oberes LCD-Gehäuse, LCD-Block [2.3]
Drehmechanismus [2.5]
Linkes Gehäuse [2.5]
LCD-Leiterplatte, Hintergrundleuchte, LCD-Modul, unteres LCD-Gehäuse [2.9]
Kamerachassis [2.6]
Objektivrahmen, Objektiv, SE-Leiterplatte, CCD-Sensor [2.6]
Stromanschlußbuchse [2.6]
Cassettenfachdeckel, obere Abdeckung [2.3] (Hinweis 1)
Videorecorder-Chassis, Buchseneinheit, hintere Abdeckung [2.6]
VCA-Leiterplatte, Laufwerksrahmen, UH-Bandlaufwerk [2.7]
Handgurt, TW/PW-Schalter, rechtes Gehäuse [2.8]

Hinweis 1: Diese Teile im Ladestoppstatus demontieren oder montieren; nach der Beendigung dieser Arbeiten, ist das Bandlaufwerk wieder auf den Ladestoppstatus zu stellen.

2. Ausbau der Gehäuse und Leiterplatten

2.1. Buchsenabdeckung, vordere Gehäuseeinheit, Objetivdeckel (Abb. 2-1)

Vorsicht:
Darauf achten, daß die Kabel des Mikrofons nicht beschädigt werden.

Montagevorgang und Vorsichtsmaßnahmen:
Der O-Ring muß an der in Abb. 2-1 dargestellten Position eingebaut werden.

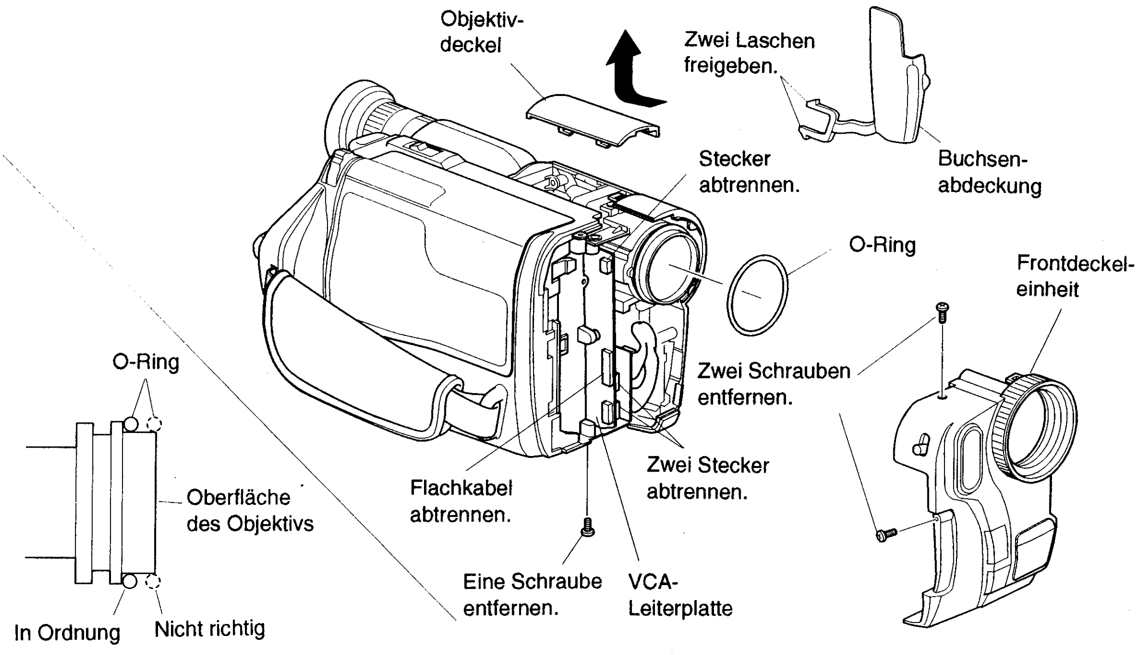

Objektiv-deckel
Zwei Laschen freigeben.
Stecker abtrennen.
Buchsen-abdeckung
O-Ring
Frontdeckel-einheit
Zwei Schrauben entfernen.
Zwei Stecker abtrennen.
Flachkabel abtrennen.
Eine Schraube entfernen.
VCA-Leiterplatte
O-Ring
Oberfläche des Objektivs
In Ordnung
Nicht richtig

Abb. 2-1

2.2 PSW-Leiterplatte, Mikrofoneinheit, Gleichstromleuchte, Frontdeckel (Abb. 2-2)

Hinweis: Manche Modelle sind nicht mit der Gleichstromleuchte ausgerüstet.

Montagevorgang und Vorsichtsmaßnahmen:
Auf die richtige Einbaurichtung des Mikrofons achten. Der rote Draht dient für die linke Seite, wogegen der weiße Draht für die rechte Seite zu verwenden ist.

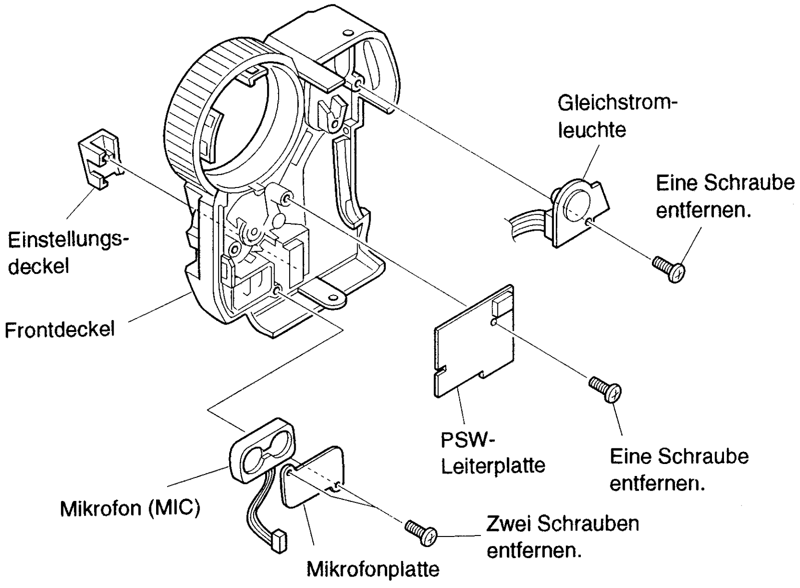

Gleichstrom-leuchte
Eine Schraube entfernen.
Einstellungs-deckel
Frontdeckel
PSW-Leiterplatte
Eine Schraube entfernen.
Mikrofon (MIC)
Zwei Schrauben entfernen.
Mikrofonplatte

Abb. 2-2

2.3 Oberes LCD-Gehäuse [ausgenommen für Typ 660, 368, 360], LCD-Block [ausgenommen für Typ 660, 368, 360], Cassettenfachdeckel, obere Abdeckung (Abb. 2-3-1, 2-3-2, 2-3-3)

Vorsicht:

1. Den Cassettenfachdeckel und die obere Abdeckung nur in dem Ladestoppstatus demontieren oder montieren. Nach Beendigung dieser Arbeit, das Bandlaufwerk in den Ladestoppstatus zurückbringen.
2. Darauf achten, daß der LCD-Bildschirm nicht beschädigt oder verschmiert wird. (Falls Schmutz anhaftet, mit einem weichen Tuch abwischen.)
3. Das LCD-Modul und die Hintergrundleuchte mit extremer Vorsicht behandeln.

■ Hinweis zum Ausbau der oberen Abdeckung

Einen normalen Schraubendreher zwischen der oberen Abdeckung und dem Unterchassis einführen und Abschnitt (B) der Blattfeder in Richtung des Pfeiles (C) drücken, um die obere Abdeckung in der Richtung des Pfeiles zu entfernen (siehe Abb. 2-3-3).

Montagevorgang und Vorsichtsmaßnahmen:

Um den Cassettenfachdeckel einzubauen, zuerst die Abschnitte (A) mit dem Cassettenhalter in Eingriff bringen.

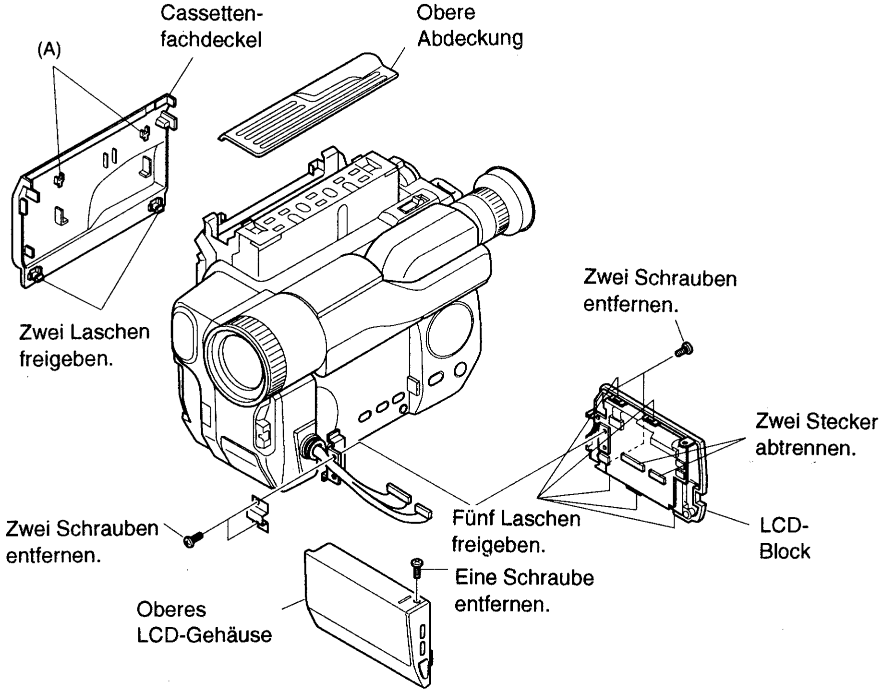

Cassetten-fachdeckel
Obere Abdeckung
(A)
Zwei Laschen freigeben.
Zwei Schrauben entfernen.
Zwei Stecker abtrennen.
Zwei Schrauben entfernen.
Fünf Laschen freigeben.
LCD-Block
Eine Schraube entfernen.
Oberes LCD-Gehäuse

Abb. 2-3-1 [Ausgenommen Typ 660, 368, 360]

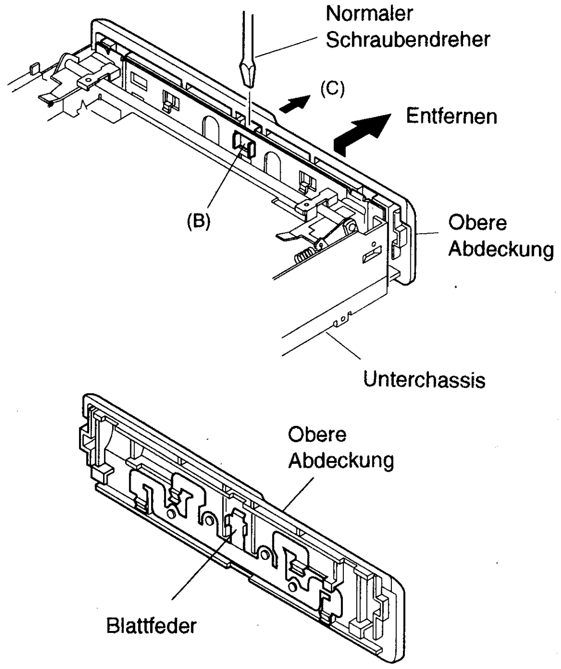

Normaler Schraubendreher
(C)
Entfernen
(B)
Obere Abdeckung
Unterchassis
Obere Abdeckung
Blattfeder

Abb. 2-3-3

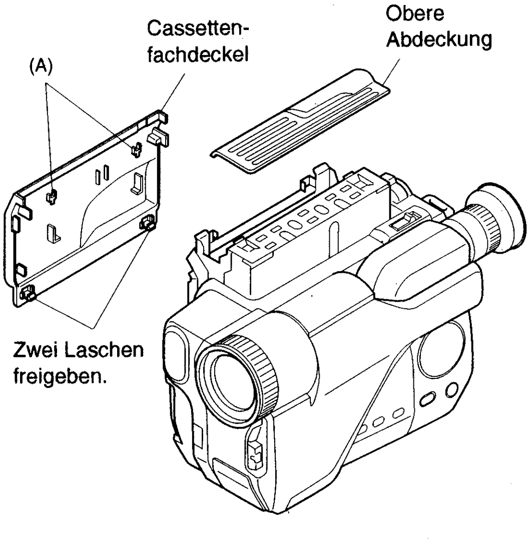

Cassetten-fachdeckel
Obere Abdeckung
(A)
Zwei Laschen freigeben.

Abb. 2-3-2 [Für Typ 660, 368, 360]

2.4 Linke Gehäuseeinheit, rechte Gehäuseeinheit (Abb. 2-4-1, 2-4-2)

Vorsicht:
Darauf achten, daß die Stecker (PG951 und PG731) zwischen den VCA- und CON-Leiterplatten nicht beschädigt werden.

Montagevorgang und Vorsichtsmaßnahmen:
Die Stecker PG951 und PG731 richtig anschließen.

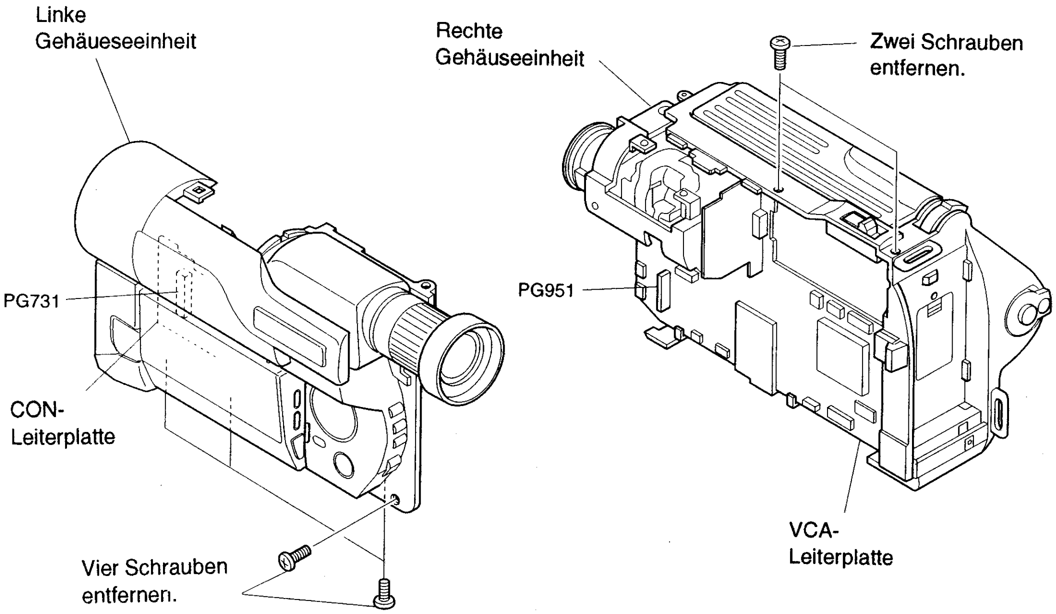

Linke Gehäueseeinheit
Rechte Gehäuseeinheit
Zwei Schrauben entfernen.
PG951
PG731
CON-Leiterplatte
VCA-Leiterplatte
Vier Schrauben entfernen.

Abb. 2-4-1 [Ausgenommen Typ 660, 368, 360]

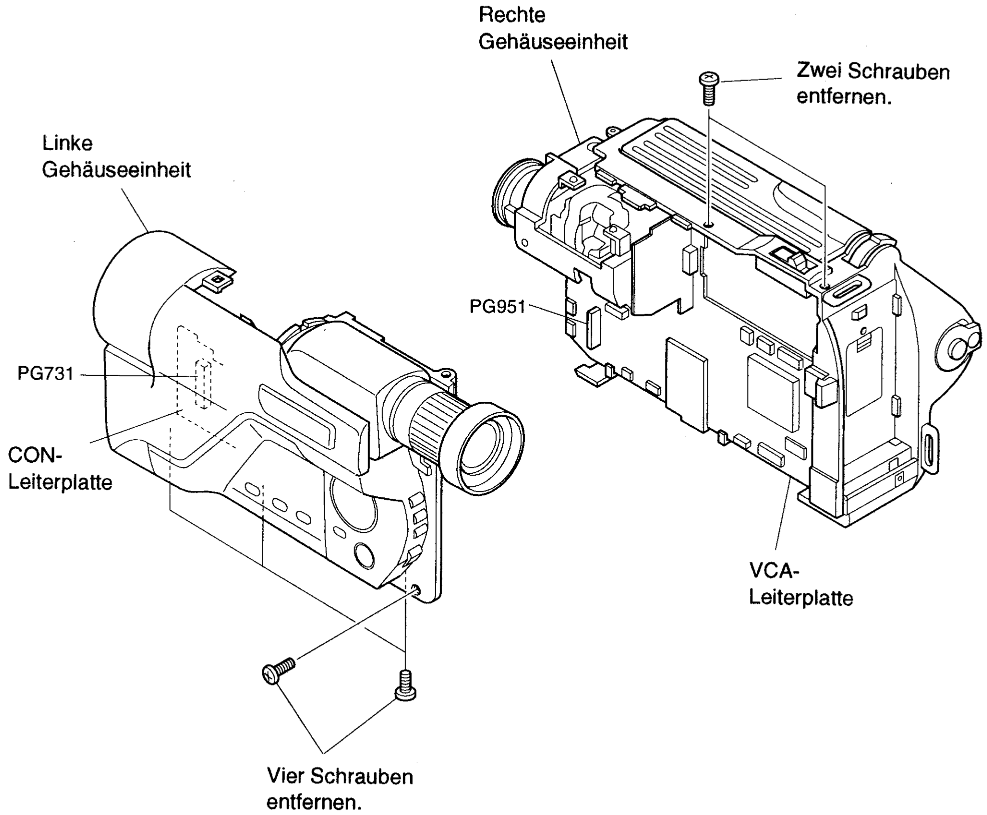

Rechte Gehäuseeinheit
Zwei Schrauben entfernen.
Linke Gehäuseeinheit
PG951
PG731
CON-Leiterplatte
VCA-Leiterplatte
Vier Schrauben entfernen.

Abb. 2-4-2 [Für Typ 660, 368, 360]

2.5 Elektronischer Sucher (EVF), Lautsprecher [Ausgenommen für Typ 660, 368, 360], CON-Leiterplatte, Drehmechanismus [ausgenommen Typ 660, 368, 360], Linkes Gehäuse (Abb. 2-5-1, 2-5-2, 2-5-3)

Vorsicht:
Darauf achten, daß der LCD-Öffnungs/Schließschalter auf der CON-Leiterplatte nicht beschädigt wird.

Montagevorgang und Vorsichtsmaßnahmen:
Wenn der elektronische Sucher, der Lautsprecher, die CON-Leiterplatte und der Drehmechanismus eingebaut werden, die einzelnen Kabel gemäß Abb. 2-5-3 anordnen.

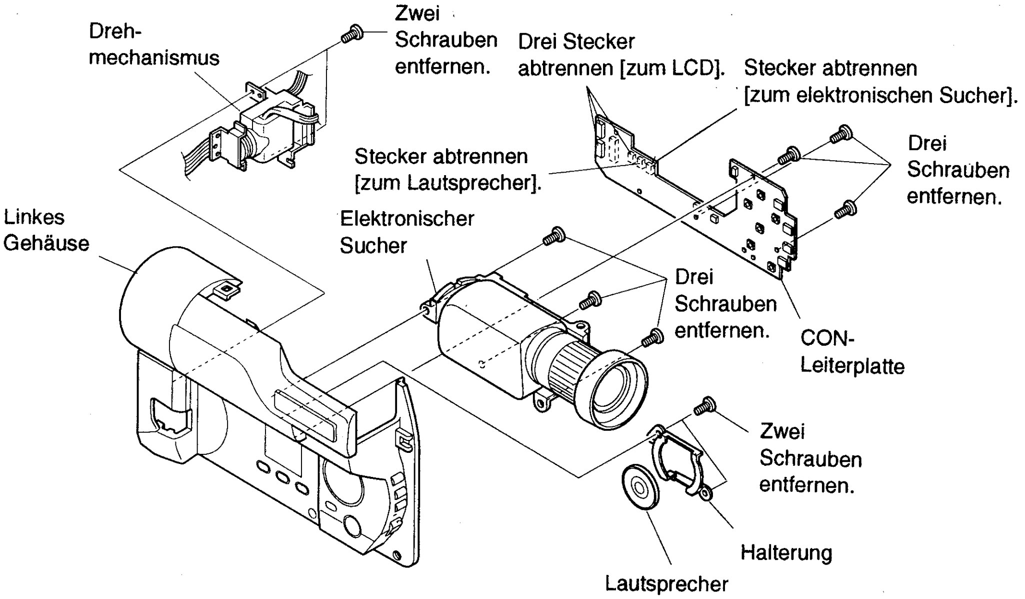

Dreh-mechanismus
Zwei Schrauben entfernen.
Drei Stecker abtrennen [zum LCD].
Stecker abtrennen [zum elektronischen Sucher].
Drei Schrauben entfernen.
Stecker abtrennen [zum Lautsprecher].
Linkes Gehäuse
Elektronischer Sucher
Drei Schrauben entfernen.
CON-Leiterplatte
Zwei Schrauben entfernen.
Halterung
Lautsprecher

Abb. 2-5-1 [Ausgenommen für Typ 660, 368, 360]

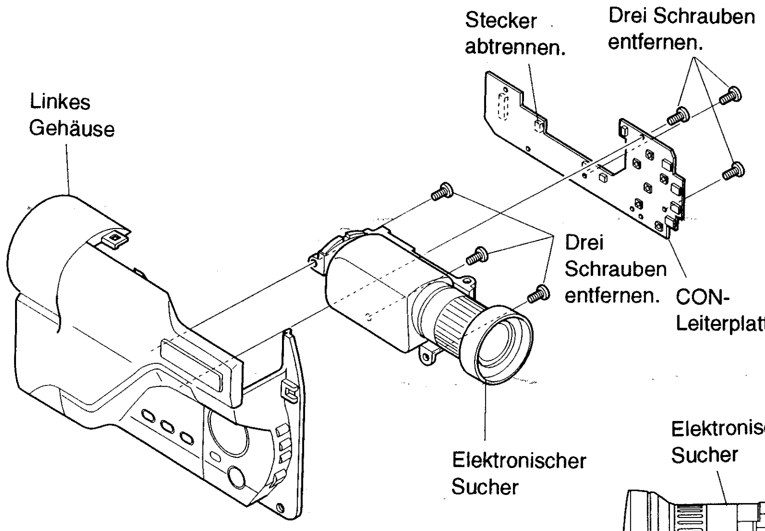

Stecker abtrennen.
Drei Schrauben entfernen.
Linkes Gehäuse
Drei Schrauben entfernen.
CON-Leiterplatte
Elektronischer Sucher

Abb. 2-5-2 [Für Typ 660, 368, 360]

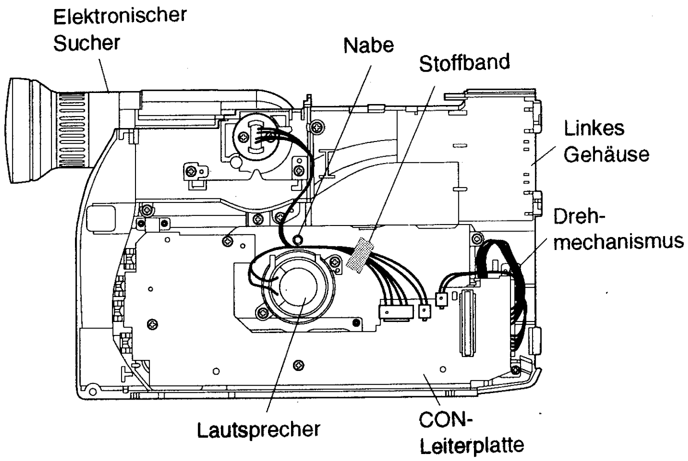

Elektronischer Sucher
Nabe
Stoffband
Linkes Gehäuse
Dreh-mechanismus
Lautsprecher
CON-Leiterplatte

Abb. 2-5-3

2.6 Kamerachassiseinheit (Objektivrahmen, Objektiv, SE-Leiterplatte, CCD-Sensor), Videorecorder-Chassiseinheit, Buchseneinheit, hintere Abdeckung, Strombuchseneinheit (Abb. 2-6)

Vorsicht:

1. Darauf achten, daß die Stecker (PG201 und PG1001) zwischen den VCA- und SE-Leiterplatten nicht beschädigt werden.
2. Darauf achten, daß die Stecker zwischen der VCA-Leiterplatte (PG0001) und der hinteren Abdeckung (Strombuchseneinheit) nicht beschädigt werden.
3. Darauf achten, daß das Kristallfilter und der CCD-Sensor nicht beschädigt werden.

Montagevorgang und Vorsichtsmaßnahmen:

1. Die Stecker PG201 und PG1001 richtig anschließen.
2. Die Stecker PG0001 und die hintere Abdeckung (Strombuchseneinheit) richtig anschließen.
3. Das Kristallfilter ist nicht richtungsempfindlich.
4. Den CCD-Sensor parallel zur SE-Leiterplatte einsetzen, mit Schrauben befestigen und danach anlöten.

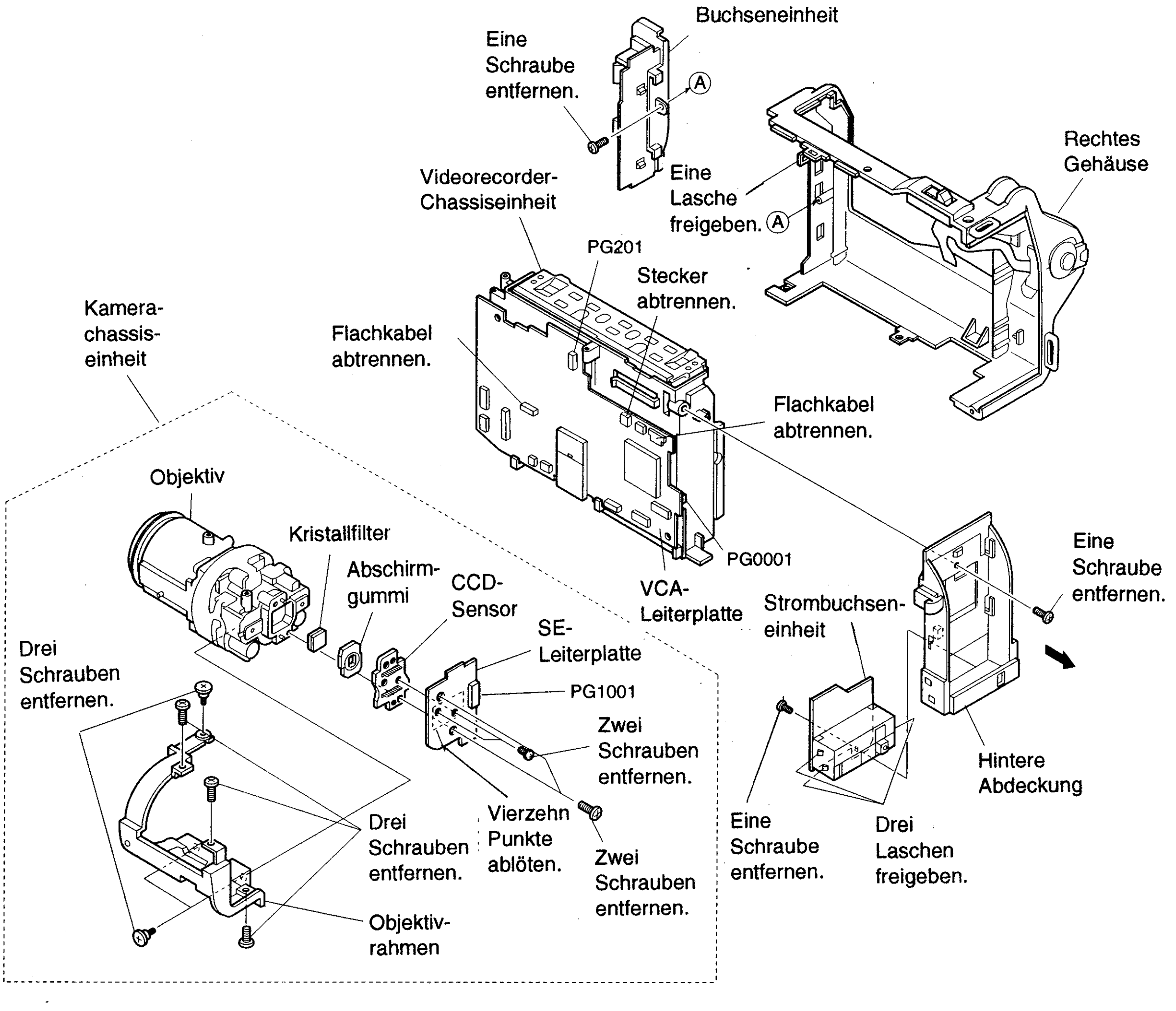

Buchseneinheit
Eine Schraube entfernen.
Ⓐ
Rechtes Gehäuse
Videorecorder-Chassiseinheit
Eine Lasche freigeben. Ⓐ
PG201
Stecker abtrennen.
Kamera-chassis-einheit
Flachkabel abtrennen.
Flachkabel abtrennen.
Objektiv
Kristallfilter
Abschirm-gummi
CCD-Sensor
SE-Leiterplatte
PG1001
VCA-Leiterplatte
PG0001
Strombuchsen-einheit
Eine Schraube entfernen.
Drei Schrauben entfernen.
Zwei Schrauben entfernen.
Hintere Abdeckung
Drei Schrauben entfernen.
Vierzehn Punkte ablöten.
Zwei Schrauben entfernen.
Eine Schraube entfernen.
Drei Laschen freigeben.
Objektiv-rahmen

Abb. 2-6

2.7 VCA-Leiterplatte, Laufwerksrahmen, UH-Bandlaufwerk (Abb. 2-7)

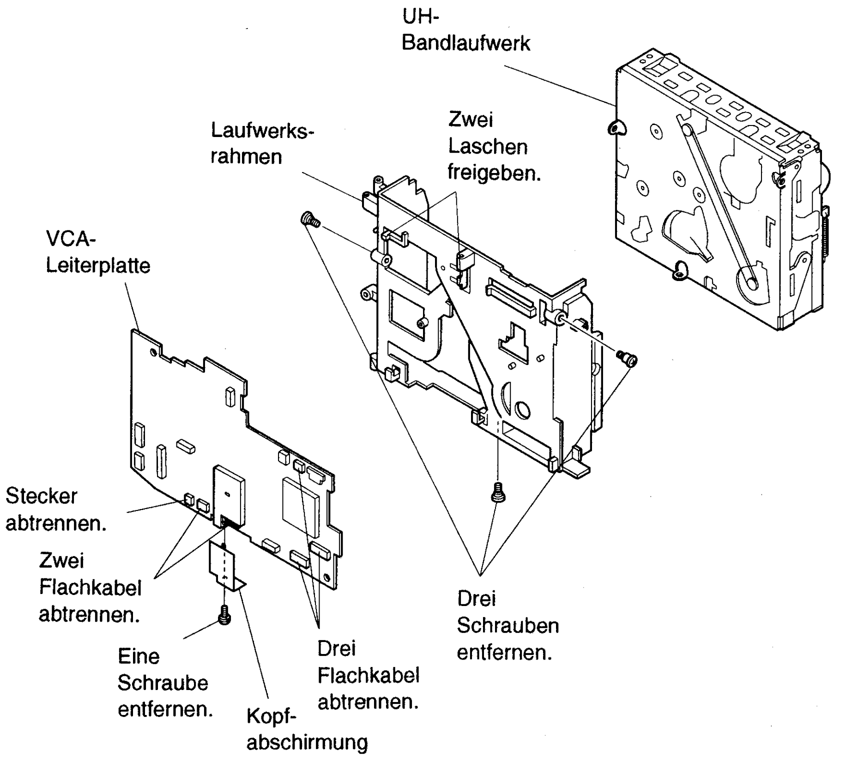

UH-
Bandlaufwerk
Laufwerks-
rahmen
Zwei
Laschen
freigeben.
VCA-
Leiterplatte
Stecker
abtrennen.
Zwei
Flachkabel
abtrennen.
Eine
Schraube
entfernen.
Kopf-
abschirmung
Drei
Flachkabel
abtrennen.
Drei
Schrauben
entfernen.

Abb. 2-7

2.8 Handgurt, TP/PW-Schalter, rechtes Gehäuse (Abb. 2-8)

Vorsicht:
Darauf achten, daß das Flachkabel und der TW/PW-Schalter nicht beschädigt werden.

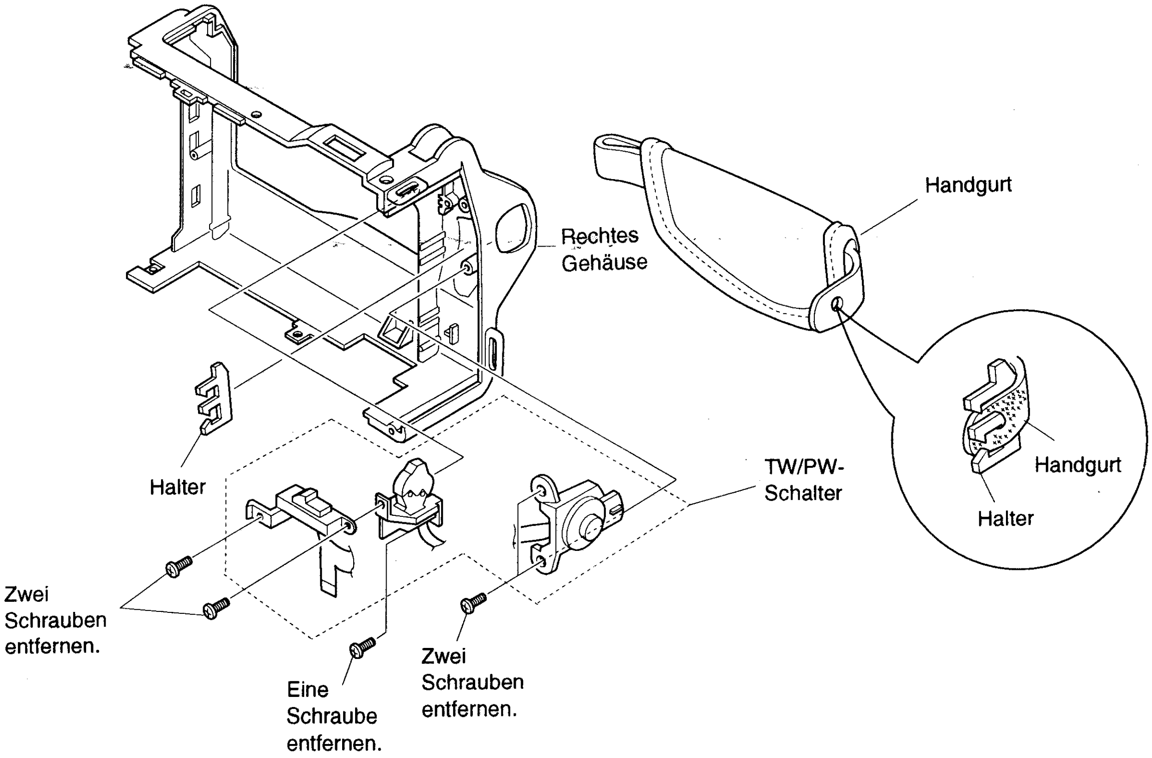

Handgurt
Rechtes
Gehäuse
Halter
TW/PW-
Schalter
Handgurt
Halter
Zwei
Schrauben
entfernen.
Eine
Schraube
entfernen.
Zwei
Schrauben
entfernen.

Abb. 2-8

2.9 LCD-Leiterplatte, Hintergrundleuchte, LCD-Modul, unteres LCD-Gehäuse (Abb. 2-9)

[Ausgenommen für Typ 660, 368, 360]

Vorsicht:

1. Darauf achten, daß der LCD-Bildschirm nicht beschädigt oder verschmiert wird. (Falls Schmutz anhaftet, mit einem weichen Tuch abwischen.)
2. Das LCD-Modul und die Hintergrundleuchte mit besonderer Vorsicht behandeln.

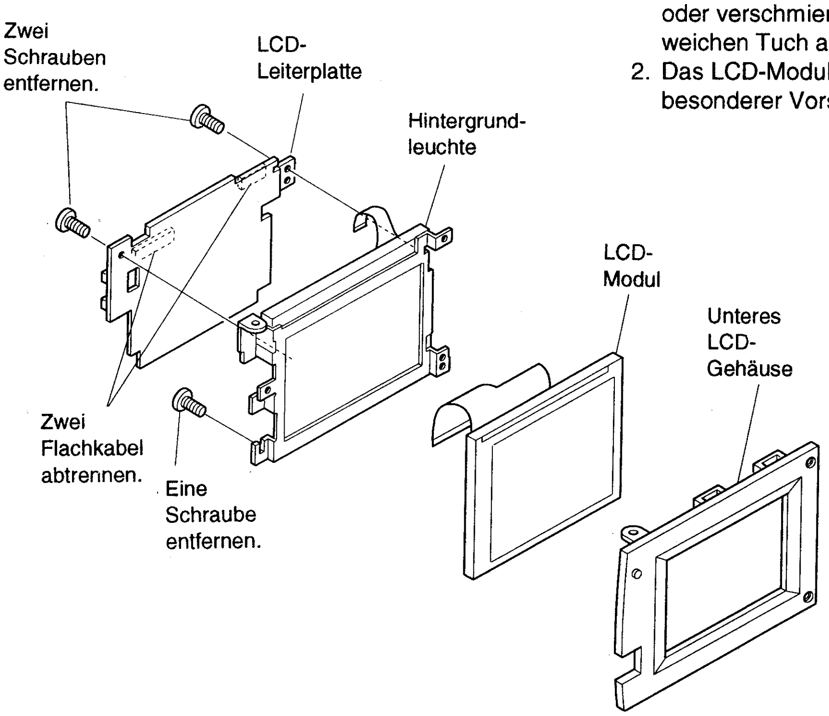

Zwei Schrauben entfernen.
LCD-Leiterplatte
Hintergrundleuchte
LCD-Modul
Unteres LCD-Gehäuse
Zwei Flachkabel abtrennen.
Eine Schraube entfernen.

Abb. 2-9 [Ausgenommen für Typ 660, 368, 360]

2.10 Rechtes Gehäuse des elektronischen Suchers, linkes Gehäuse des elektronischen Suchers, Okular (Abb. 2-10)

Vorsicht:

1. Darauf achten, daß die Kathodenstrahlröhre nicht beschädigt wird.

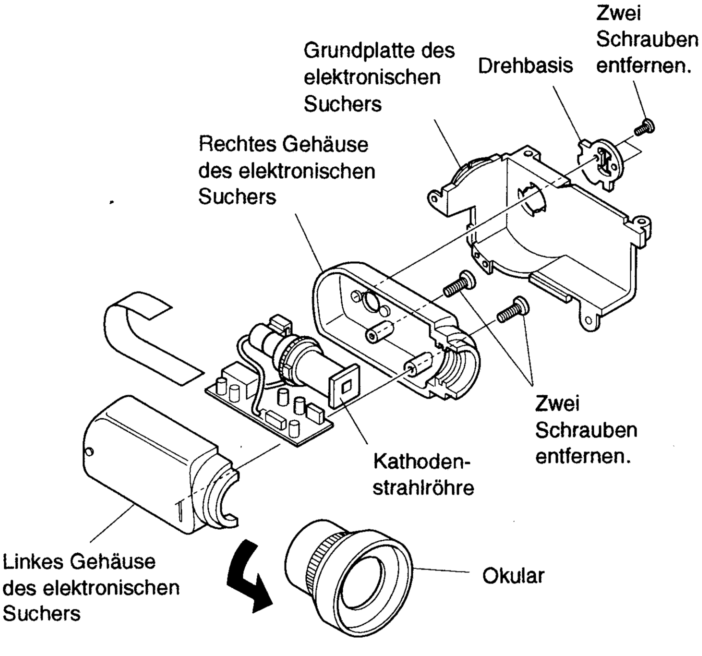

Zwei Schrauben entfernen.
Grundplatte des elektronischen Suchers
Drehbasis
Rechtes Gehäuse des elektronischen Suchers
Zwei Schrauben entfernen.
Kathodenstrahlröhre
Linkes Gehäuse des elektronischen Suchers
Okular

Abb. 2-10

3. Manuelle Bedienung des Bandlaufwerks

Vorsicht:
Diesen Vorgang nur in Notfällen ausführen, wenn das normale Laden oder Entladen aufgrund defekter elektrischer Schalkreise oder eines defekten Lademotors nicht möglich ist.

(1) Die rechte Gehäuseeinheit ausbauen (siehe Abb. 2-5).
(2) Den Stecker (CN604) von PG604 auf der VCA-Leiterplatte abtrennen, und eine Gleichspannung von 4 V an CN604 anlegen (direkt an den Lademotor) (siehe Abb. 3-1).
Durch das Anschließen des braunen (+) Drahtes und des roten (-) Drahtes von CN604 kommt es zum Entladen.
Durch das Anschließen des roten (+) Drahtes und des braunen (-) Drahtes von CN604 kommt es zum Laden.

Hinweis: Um das Bandlaufwerk bei eingesetztem Band zu entladen, den Capstanmotor gleichzeitig von Hand drehen, um das Band aufzuspulen.

Falls es nicht zu einem Laden oder Entladen kommt, wenn die Gleichspannung von 4 V direkt an den Lademotor angelegt wird, den folgenden Vorgang ausführen:

(3) Die Kamerachassiseinheit und die hintere Einheit entfernen (siehe Abb. 2-7).

Hinweis: Darauf achten, daß sich die hinteren Einheit nur schwer abnehmen läßt.

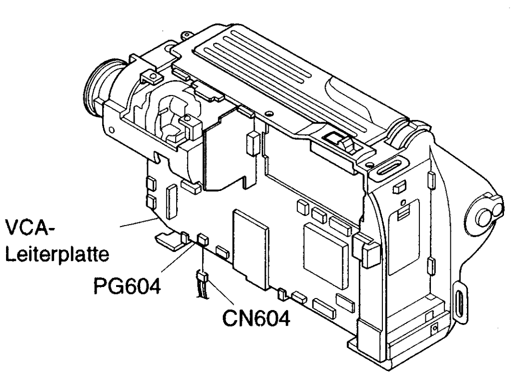


Abb. 3-1

(4) Drei Flachkabel abtrennen (siehe Abb. 3-2).
(5) Den Stecker abtrennen (siehe Abb. 3-2).
(6) Eine Schraube der Kopfabschirmung entfernen (siehe Abb. 3-2).
(7) Zwei Flachkabel abtrennen (siehe Abb. 3-2).
(8) Drei Schrauben entfernen (siehe Abb. 3-2).
(9) Das UH-Bandlaufwerk in der Richtung des Pfeiles aus dem rechten Gehäuse entfernen (siehe Abb. 3-2).
(10) Den Cassettenfachdeckel und die obere Abdeckung entfernen (siehe Abb. 2-3).

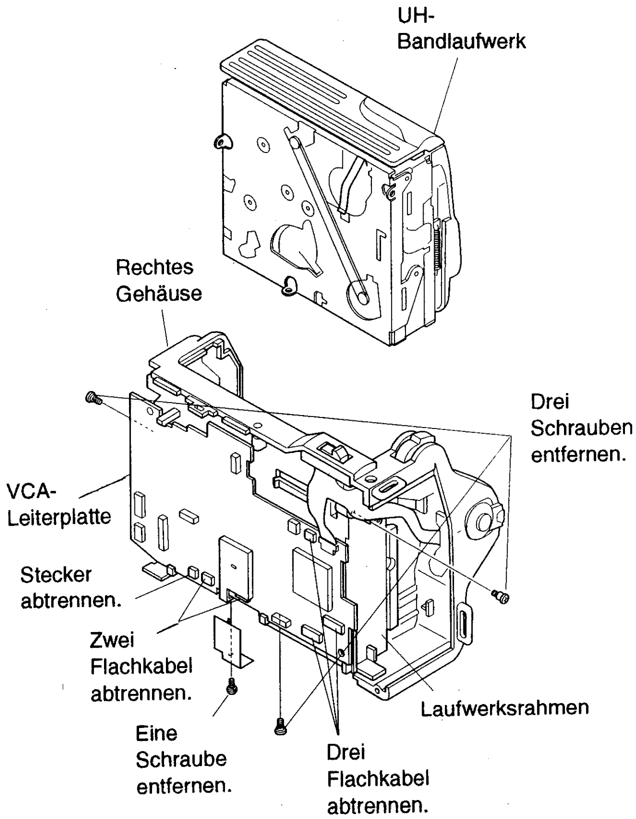


Abb. 3-2

(11) Zwei Laschen freigeben und den Lademotor aus dem Lademotorhalter herausziehen (siehe Abb. 3-3).

Hinweis: Der obige Ausbau unterscheidet sich von dem normalen Ausbau. Unter normalen Bedingungen ist der Lademotor gemeinsam mit dem Lademotorhalter zu entfernen. (Der Lademotor und der Lademotorhalter stellen eine Einheit dar.)

(12) Das Bandlaufwerk umdrehen (siehe Abb. 3-3).

Hinweis: Das Bandlaufwerk nicht umdrehen, wenn die Zwischenrollenabdeckung entfernt ist.

(13) Einen normalen Schraubendreher oder dgl. verwenden, um das Nockenzahnrad (A) oder (B) zu drehen (siehe Abb. 3-3).

Durch Drehung in Pfeilrichtung wird das Bandlaufwerk entladen, wogegen Drehung in der dem Pfeil entgegengesetzten Richtung ein laden des Bandlaufwerkes bewerkstelligt.

Hinweise:
1. Darauf achten, daß die Nockenzahnräder nicht beschädigt werden.
2. Um das Bandlaufwerk bei eingesetztem Band zu entladen, den Capstanmotor gleichzeitig von Hand drehen, um das Band aufzuspulen.

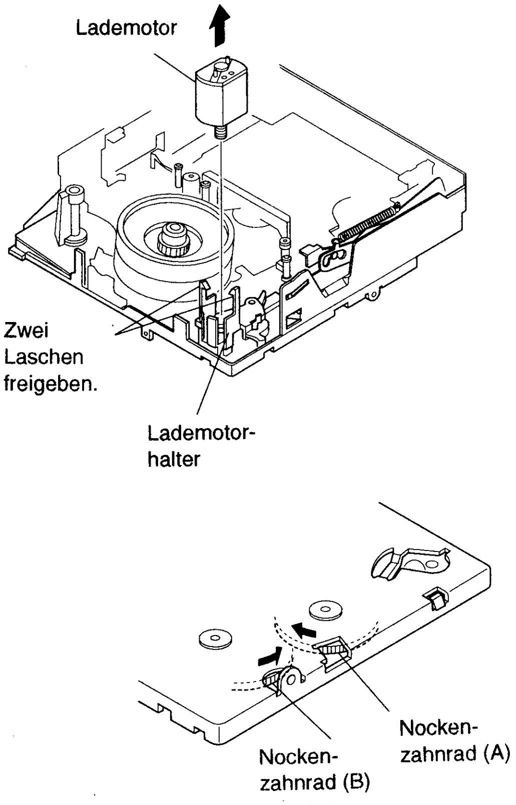

Lademotor
Zwei Laschen freigeben.
Lademotorhalter
Nockenzahnrad (A)
Nockenzahnrad (B)

Abb. 3-3

Notiz

Warenzeihen
MS-DOS ist ein eingetragenes Warenzeihen der Microsoft Corporation.

Abkürzungen
MAP ..... Digitales Einstellprogramm für die Kamera
DSP ..... Digital-Signal-Prozessor

1. Anschluß für die Einstellung

1.1 Vor Beginn der Einstellung

(1) Das Datum einstellen. (Falls der Video-Kamerarecorder für einige Minuten nach dem Einschalten der Stromversorgung ohne Einstellung des Datums belassen wird, schaltet er automatisch auf den Demonstrationsmodus.)

Hinweise:

1. Die elektrische Einstellung des Schaltkreises unter Verwendung eines Personal Computers ausführen.
2. Die Gehäuse müssen für die elektrischen Einstellungen des Schaltkreises nicht antfernt werden.
3. Das ODC-Gleichstromkabel ist eine Vorrichtung, die für die Einstellung des Stromausschaltpegels zu verwenden ist. Für die anderen Einstellungen kann das Netzgerät als Stromversorgung eingesetzt werden.

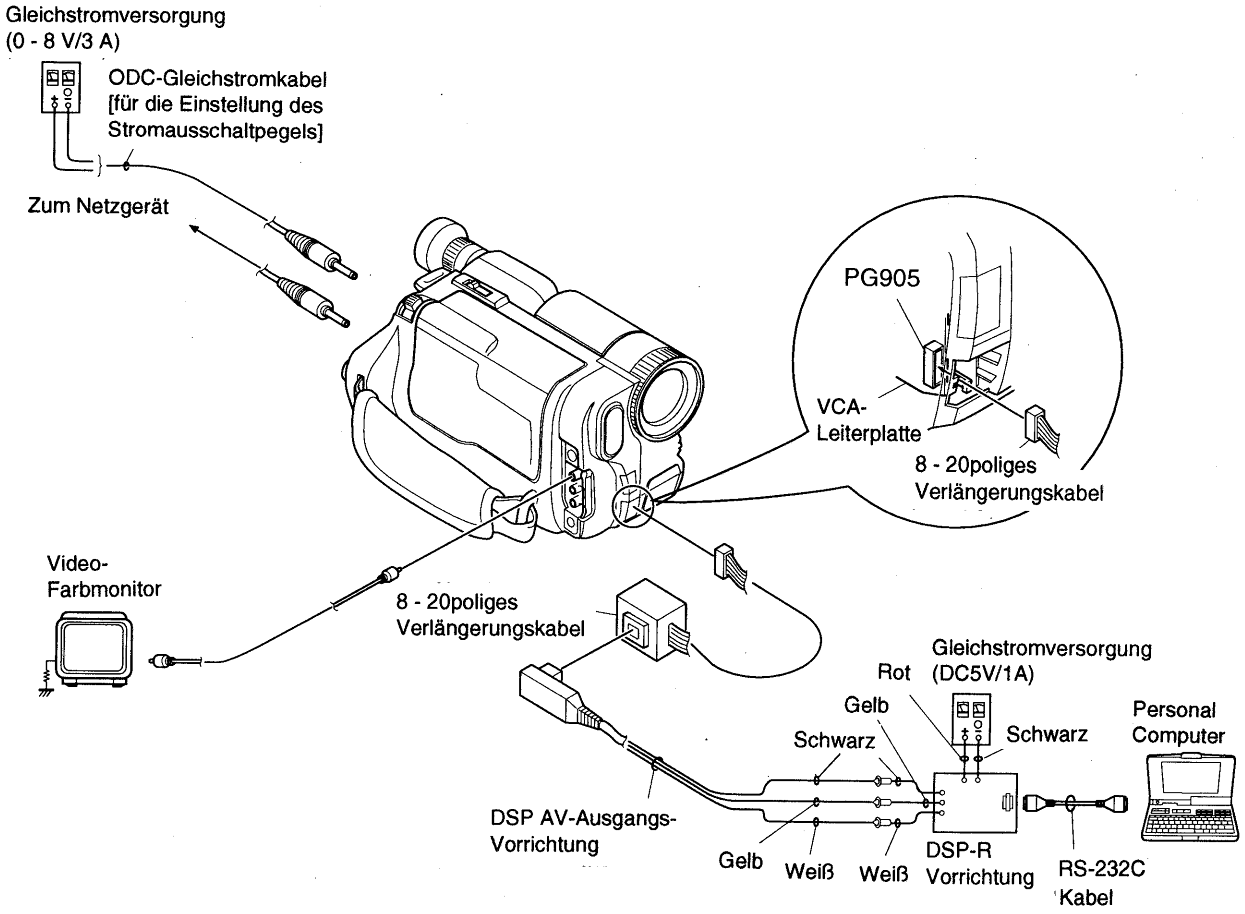

Gleichstromversorgung
(0 - 8 V/3 A)
ODC-Gleichstromkabel
[für die Einstellung des
Stromausschaltpegels]
Zum Netzgerät
PG905
VCA-
Leiterplatte
8 - 20poliges
Verlängerungskabel
Video-
Farbmonitor
8 - 20poliges
Verlängerungskabel
Gleichstromversorgung
(DC5V/1A)
Rot
Gelb
Schwarz
Schwarz
Personal
Computer
DSP AV-Ausgangs-
Vorrichtung
Gelb
Weiß
Weiß
DSP-R
Vorrichtung
RS-232C
Kabel

Abb. 1-1

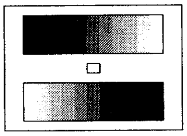
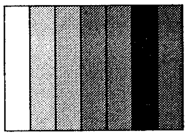
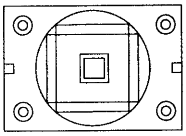
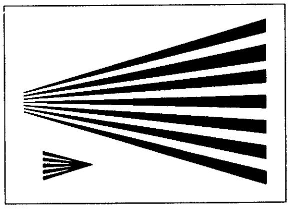
2. Einstellung des Kameraabschnitts

2.1 Prüfeinrichtung erforderlich für die Einstellung

Oszilloskop (Doppel-Spur) [und Vektorskop]
Digital-Voltmeter (DVM)
Video-Farbmonitor
Diskette für Einstellung
Personal Computer
Personal Computer 9-Stift oder 25-Stift (RS-232C) Kabel
DSP-R Vorrichtung
DSP AV-Ausgangsvorrichtung
8 - 20poliges Verlängerungskabel
Lichtkasten (3100°K)
Lichtbalancefilter C12
Gleichstromversorgung (DC5V/1A)
Netzgerät oder Gleichstromversorgung (7V/3A) und ODC-Gleichstromkabel

2.2 Liste der Diagramme für die Kamera-Einstellung

Tabelle 2-1

Grauwertdiagramm	Farbbalkendiagramm	Auflösungsdiagramm
		
Rückfokus-Einstelldiagramm		

2.3 Einstellbedingungen

1. Darauf achten, daß der Videorecorderabschnitt richtig eingestellt wurde, bevor der Kameraabschnitt eingestellt wird.
2. Einen Lichtkasten mit minimalem Flimmern verwenden. Die Farbtemperatur des Lichtkastens genau steuern.
3. Wenn der Video-Ausgangsbuchse für die Ausführung von Einstellungen verwendet wird, unbedingt die Buchse mit 75 Ohm abschließen.
4. Den Lichtkasten etwa 30 cm entfernt von der Kamera (Objektiv-Oberfläche) aufstellen, wenn nicht anders vorgeschrieben.
5. Die Kamera auf das Diagramm richten, um die Video-Periode auszufüllen, wenn nicht anders vorgeschrieben.
6. Die 10:1 Sonde des Oszilloskops verwenden, wenn nicht anders vorgeschrieben.
7. Wenn "Oszilloskop intern triggern" vorgeschrieben ist, die Zeitbasis des Oszilloskops auf 10 µs/Teilung einstellen.

2.4 Voreingestellte Positionen der Schalter und Regler während der Einstellung

Hinweis: Bein manchen Modellen sind die Schalter (Modi) nicht mit "§" markiert.

• CAM/OFF/VIDEO Schalter	Position "CAM"
• SUB POWER-Schalter	Position "STANDBY"
• LIGHT-Schalter [§]	Position "OFF"
• DATE	Nicht Display-Modus
• TITLE	Nicht Display-Modus
• EFFECT	OFF-Modus
• BLC	OFF-Modus
• MENU	Nicht-Display-Modus
• EIS des Menü [§]	OFF-Modus
• PROGRAM AE [§]	AUTO-Modus
• FOCUS	Automatische Scharfeinstellung
• FADE	OFF-Modus

Vorsicht

1. Da Änderungen im Einstellungsprogramm aufgrund ständiger Verbesserungen vorbehalten sind, können die Anzeigen am Computer von den in dieser Anleitung dargestellten Anzeigen abweichen. In diesen Fällen sind die Anzeigen am Computer für den Einstellung zu befolgen.
2. Die Anzeigen am Computer können von den in dieser Anleitung dargestellten Anzeigen abweichen, abhängig von dem Bestimmungsgebiet der Modelle und davon, ob bestimmte Funktionen vorhanden sind oder nicht. In solchen Fällen sind die Anzeigen am Computer für den Einstellung zu befolgen.

2.5 Nach dem Austauschen von wichtigen Komponenten in dem Kamera-Abschnitt prüfen.

Nach dem Austauschen von wichtigen Komponenten, die in der nachfolgenden Tabelle aufgeführten Prüfungen ausführen. Die nachfolgende Tabelle zeigt die mindestens erforderlichen Einstellungen nach dem Austausch von wichtigen Komponenten. Die nachfolgende Tabelle trifft vielleicht nicht zu, wenn mehrere Komponenten in Abhängigkeit von dem Symptom des Defekts ausgetauscht wurden.

Vorsicht: Wenn der EEP ROM der VCA-Leiterplatte ausgetauscht wird, den EEP ROM initialisieren, wie es in "2.6.3 Anfängliche Einstellung nach Modell" beschrieben ist, und danach alle Einstellungen des Kameraabschnitts und der Systemregelungs/Servo-Schaltkreise ausführen.

Tabelle 2-2

	Name der Einstellung	Name der wichtigen Komponenten									
		SE-Leiterplatte	VCA-Leiterplatte	IC 1001	IC 0202	IC 1104	IC 1105	IC 1201	IC1401 IC1402 IC1403	Objektivblock	
Anfängliche Einstellung nach Modell			●				●				
Digital-Einstellvorgang											
(1)	Einstellung der automatischen Blendenregelung	●	●	●		●	●	●		●	
(2)	Weißbalance-Einstellung	●	●	●			●				
(3)	Chromagewinn-Einstellung	●	●	●			●				
Einstellvorgang für Autofokus											
(1)	Einstellung der Zoom-Nachführung	●	●				●			●	
(2)	Einstellung des AF-Rauschpegels	●	●				●			●	
Stabilisator-Abgleichvorgang [ausgenommen für Typ 568, 563 (für Modell EE), 368, 360]		●	●				●		●		
Punktrauschen-Abgleichvorgang		●	●				●				

2.6 Einstellvorgang

Hinweise:

1. Um die Einstellung zu beenden, die [ESC] (Escape) Taste zweimal drücken, um die MS-DOS Anzeige zu erhalten, und danach den Video-Kamerarecorder und die Vorrichtungen ausschalten.
2. Nachfolgend ist ein Beispiel für die Anweisungen des Personal Computers und der Menü-Anzeige beschrieben; diese unterscheiden sich in Abhängigkeit von Hersteller und Modell des Personal Computers. Siehe die Bedienungsanleitung des Personal Computers.
3. Falls eine Fehlermeldung auf dem Display des Computers erscheint, siehe Abschnitt "4. Fehlermeldungen". Falls nach dem Erscheinen einer Fehlermeldung eine Taste gedrückt wird, kehrt das Display des Computers auf das Einstellmenü zurück.

2.6.1 Anschlüsse für die Einstellung

Den Video-Kamerarecorder, die DSP-R Vorrichtung, den Personal Computer, die Stromversorgung usw. gemäß Abb. 1-1 anschließen.
Darauf achten, daß der Video-Kamerarecorder eingeschaltet ist.

2.6.2 Starten des Einstellprogramms (MAP)

(1) Den Personal Computer einschalten und das MS-DOS System starten.

Hinweis: Siehe die Bedienungsanleitung des Personal Computers für das Starten des Personal Computer.

(2) Die Diskette für die Einstellung in das Diskettenlaufwerk A einsetzen und die Tasten **A :** gefolgt von [ENTER] drücken. (Anzeige 2-1)

(3) Die Tasten **M A P _ I B M** [Leerstelle] **1** gefolgt von [ENTER] drücken. (Anzeige 2-2)

Hinweis: Wenn Sie einen Personal Computer mit zwei seriellen Schnittstellen-Steckverbindern verwenden und die DSP-Vorrichtung an den seriellen Schnittstellen-Steckverbinder 2 anschließen, MAP_IBM 2 drücken.

(4) Die dem Modell entsprechende Nummer wählen. (Anzeige 2-3)
Falls [ESC] (Escape) gedrückt wird, erscheint wiederum die Anzeige vor dem Start des MAP-Programms (MS-DOS).

Hinweise:

1. Falls es mehr als 5 Modelle gibt und die **P**-Taste gedrückt wird, ändert die Anzeige des Computers auf die nächste Seite.
2. Falls Sie fälschlicherweise eine Nummer ohne Modellbezeichnung wählen, erscheint die in "MELDUNG BEI FEHLERHAFTER BEDIENUNG" gezeigte Meldung auf dem Bildschirm des Computers. (Anzeige 2-4)
Eine beliebige Taste drücken, um auf die MODELLWAHL-Anzeige zurückzukehren.

(5) Die **Y**-Taste drücken. (Anzeige 2-5)
Falls die **N**-Taste gedrückt wird, kehrt die Anzeige des Computers auf das Modellwahlmenü (MODEL SELECT MENU) zurück.

(6) Die Anzeige 2-6 beachten.

2.6.3 Anfängliche Einstellung nach Modell

<u>Vor Beginn der Einstellung</u>

1. Dieser Abschnitt beschreibt, wie der EEP ROM initialisiert wird. Unbedingt diesen Abschnitt ausführen, nachdem der EEP ROM auf der VCA-Leiterplatte ausgetauscht wurde. Wenn andere Komponenten ausgetauscht werden, muß der EEP ROM normalerweise nicht initialisiert werden. Die [ESC] (Escape) Taste drücken, um die Anzeige des Computers auf das HAUPTMENÜ zurückzustellen.
2. Unbedingt die nachfolgenden Einstellungen ausführen, nachdem die anfängliche Einstellung beendet ist.
   - 2.6.4 Digital-Einstellvorgang
   - 2.6.5 Autofokus-Einstellvorgang
   - 2.6.6 Stabilisator-Abgleichvorgang [ausgenommen für TYP 568, 563 (für Modell EE), 368, 360]
   - 2.6.7 Punktrauschen-Abgleichsvorgang
   - 2.7 Einstellung des LCD [ausgenommen für TYP 660, 368, 360]
   - 3.5 Einstellung der Systemregelungs/ Servo-Schaltkreise

(1) Das MAP starten.

(2) Die Anzeige 2-6 beachten

(3) Die **A**-Taste drücken.

(4) Die Anzeige 3-1 beachten.

(5) Die **Y**-Taste drücken, um zu starten.
Die **N**-Taste drücken, um auf das HAUPTMENÜ zurückzukehren.

(6) Ab nun die Einstellung gemäß Computer-Anzeige ausführen.
Siehe "4. Fehlermeldungen", wenn eine Fehlermeldung in der Computer-Anzeige erscheint.

Anzeige und Abbildung

Anzeige 2-1

```
C>A:
A>
```

Anzeige 2-2

```
C>
A>MAP_IBM 1
```

Anzeige 2-3

```
*********************************************
                MODEL SELECT
*********************************************
[1]          xxxxxxx
[2]          xxxxxxx
[3]          xxxxxxx
[4]          xxxxxxx
[5]          xxxxxxx
[P]          NEXT SELECTION
[ESC]        END
    Please select the type of the set.
      Press [1] - [5] or [P] or [ESC]
```

Anzeige 2-4
MELDUNG BEI FEHLERHAFTER BEDIENUNG

```
   CAN NOT FIND THE DATA FILE
       **** PRESS ANY KEY ****
```

Anzeige 2-5

```
  Selected model is x x x x x x x
        Are you sure ? (Y/N)
```

Anzeige 2-6
HAUPTMENÜ

```
*********************************************
   MANUAL ADJUSTMENT PROGRAM
*********************************************
[A]          DATA INITIALIZE
[B]          ADJUSTMENT
[C]          VCR ADJUSTMENT
[D]          AUTO FOCUS
[E]          STABILIZER
[F]          SPOT NOISE
[G]          LCD
[ESC]        END
   Please select [A] - [G] or [ESC]
```

Anzeige 3-1

```
          « DATA WRITING »
   START TO SEND DATA.   (Y/N)
```

2.6.4 Digital-Einstellvorgang

Vor Beginn der Einstellung
Wenn der EEP ROM oder die VCA-Leiterplatte ausgetauscht wurde, den EEP ROM gemäß "2.6.3. Anfängliche Einstellung nach Modell" initialisieren und danach alle Digital-Einstellungen ausführen.

(1) Das MAP starten.

(2) Die Anzeige 2-6 beachten.

(3) Die **B**-Taste drücken.

(4) Die Anzeige 4-1 beachten.

(5) Die Nummer der erforderlichen Einstellung wählen.

Hinweise:

1. Falls die [ESC] (Escape) Taste gedrückt wird, kehrt das Display des Computers auf HAUPTMENÜ zurück.
2. Um die Einstellung zu beenden, die [ESC] (Escape) Taste zweimal drücken, um die MS-DOS Anzeige wieder herzustellen, und danach den Video-Kamerarecorder und die Vorrichtung ausschalten.

(1) Einstellung der automatischen Blendenregelung

Zweck:
Einstellen den Blendensteuerdaten.
Problem bei unvollkommener Einstellung:
Das Bild wird zu hell.
Das Bild wird zu dunkel.
Bedingung:
Die Kamera auf den Lichtkasten ohne Diagramm richten, so daß der Bildschirm ausgefüllt ist (bei Weitwinkel).
Vorgang:

1) Die Anzeige 4-1 beachten.

2) Die **1**-Taste drücken.
Ab nun die Einstellung gemäß Computer-Anzeige ausführen.
Siehe "4. Fehlermeldungen", wenn eine Fehlermeldung in der Computer-Anzeige erscheint.

3) Die Anzeige 4-2 beachten.

4) Eine beliebige Taste drücken, um auf das EINSTELLMENÜ zurückzukehren.

5) Die Stromversorgung für 5 Sekunden aus- und danach wieder einschalten.

(2) Weißbalance-Einstellung

Zweck:
Einstellen der Weißbalance unter der Farbtemperatur, die als Referenz für den automatischen Weißbalance-Schaltkreis verwendet wird.
Problem bei unvollkommener Einstellung:
Farbe des Objektes unterscheidet sich von der Farbe des Bildes.
Ein weißes Objekt wird nicht als weiß gesehen.
Prüfpunkt:
Video-Ausgangsbuchse
Bedingung:
Ein C12 Filter anbringen.
Auf ein Grauwertdiagramm richten (bei Weitwinkel).
Vorgang:

1) Die Anzeige 4-1 beachten.

2) Die **2**-Taste drücken.

3) Die Anzeige 4-3 beachten.

4) *Modelle HA*:
Die **0** (Zero)- und **A**-Tasten drücken, um die Daten einzugeben.
Modelle EA:
Die **0** (Zero)- und **B**-Tasten drücken, um die Daten einzugeben.
Modelle HE:
Die **0** (Zero)- und **9**-Tasten drücken, um die Daten einzugeben.
Modelle EE:
Die **0** (Zero)- und **D**-Tasten drücken, um die Daten einzugeben.

5) Die [Enter] Taste drücken, und das Display ändert wie folgt.

Anzeige und Abbildung

Anzeige 2-6
HAUPTMENÜ

```
*******************************************
   MANUAL ADJUSTMENT PROGRAM
*******************************************
  [A]          DATA INITIALIZE
  [B]          ADJUSTMENT
  [C]          VCR ADJUSTMENT
  [D]          AUTO FOCUS
  [E]          STABILIZER
  [F]          SPOT NOISE
  [G]          LCD
  [ESC]        END
     Please select [A] - [G] or [ESC]
```

Anzeige 4-1
EINSTELLMENÜ

```
*******************************************
              ADJUSTMENT
*******************************************
  [1]    AUTO IRIS CONTROL
  [2]    WHITE BALANCE
  [3]    CHROMA GAIN
  [ESC]  RETURN TO MAIN MENU
     Please select [1]- [3] or [ESC]
```

Anzeige 4-2

```
        ADJUSTMENT FINISHED
          PRESS ANY KEY
```

Anzeige 4-3

```
 « WHITE BALANCE ADJUSTMENT »
  INPUT DATA OF OFFSET
                    FOR R-B --> 00
```

Anzeige 4-4

```
 « WHITE BALANCE ADJUSTMENT »
  INPUT DATA OF OFFSET
                   FOR Mg-G  --> 00
```

6) Die Anzeige 4-4 beachten.

7) *Modell HA*:
Die **0** (Zero)- und **A**-Tasten drücken, um die Daten einzugeben.
Modell EA:
Die **0** (Zero)- und **C**-Tasten drücken, um die Daten einzugeben.
Modell HE:
Die **0** (Zero)- und **B**-Tasten drücken, um die Daten einzugeben.
Modell EE:
Die **0** (Zero)- und **D**-Tasten drücken, um die Daten einzugeben.

8) Die [Enter] Taste drücken.
Ab nun die Einstellung gemäß Computer-Anzeige ausführen.
Siehe "4. Fehlermeldungen", wenn eine Fehlermeldung in der Computer-Anzeige erscheint.

(3) Chromagewinn-Einstellung (Abb. 2-1, 2-2, 2-3)

Zweck:
Einstellen der Farbsättigung unter der Referenz-Farbtemperatur.
Problem bei unvollkommener Einstellung:
Die Farbe des Bilder ist dichter als die des Objektes.
Die Farbe des Bildes ist leichter als die des Objektes.
Ausrüstung/Vorrichtung:
Oszilloskop (Vektorskop)
Prüfpunkt:
Video-Ausgangsbuchse

Bedingung:
Ein C12 Filter anbringen.
Auf ein Farbbalkendiagramm richten.
Vorgang:

1) Die Anzeige 4-1 beachten.

2) Die **3**-Taste drücken.

3) Die Anzeige 4-5 beachten.

4) *Bei Verwendung des Oszilloskops:*
Die **U**- und **D**-Tasten drücken, um den Rotpegel auf etwa 450 mVs-s einzustellen.
Die [Ctrl] Taste drücken und niederhalten, und danach die **U**- und **D**-Tasten drücken, so daß der Rotpegel 470 mV ±20 mVs-s beträgt (Abb. 2-1)
Bei Verwendung des Vektorskops:
Die **U**- und **D**-Tasten drücken, um den Rotvektor auf etwa 170% des Burstsignals einzustellen.
Die [Ctrl] Taste drücken und niederhalten, und danach die **U**- und **D**-Tasten drücken, so daß der Rotvektor 170%±5% beträgt (Abb. 2-2, 2-3)

5) Die [Enter] Taste drücken, und das Display ändert zu Anzeigen 4-6 und 4-7.

6) Eine beliebige Taste drücken, um auf das EINSTELLMENÜ zurückzukehren.

Anzeige und Abbildung

Anzeige 4-1
EINSTELLMENÜ

```
**********************************************
              ADJUSTMENT
**********************************************
[1]    AUTO IRIS CONTROL
[2]    WHITE BALANCE
[3]    CHROMA GAIN
[ESC]  RETURN TO MAIN MENU
   Please select [1]- [3] or [ESC]
```

Anzeige 4-4

```
« WHITE BALANCE ADJUSTMENT »
INPUT DATA OF OFFSET
                FOR Mg-G  --> 00
```

Anzeige 4-5

```
« ADJUSTMENT OF CHROMA GAIN »
         ROUGH ADJUSTMENT
[U]        CHROMA GAIN UP
[D]        CHROMA GAIN DOWN
         FINE ADJUSTMENT
[Ctrl] + [U]CHROMA GAIN UP
[Ctrl] + [D]CHROMA GAIN DOWN
[ENTER]  SAVE & RETURN TO MENU
[ESC]    QUIT
```

Anzeige 4-6

```
« ADJUSTMENT OF CHROMA GAIN »
  DATA WRITING INTO EEPROM.
```

Anzeige 4-7

```
« ADJUSTMENT OF CHROMA GAIN »
    ADJUSTMENT FINISHED.
      PRESS ANY KEY.
```

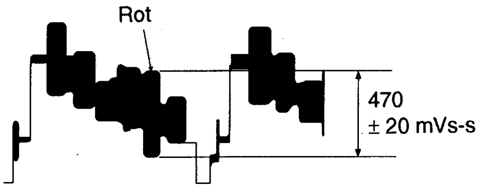


Abb. 2-1

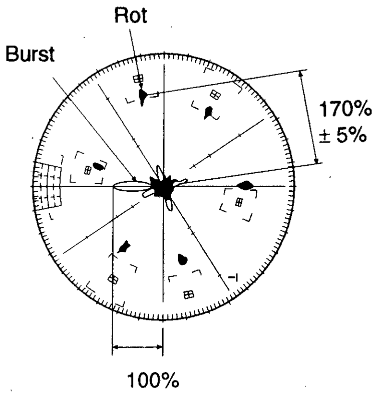


Abb. 2-2 [Modell HA, EA]

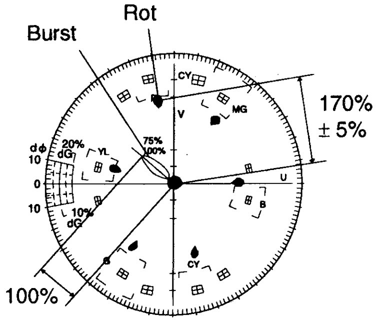


Abb. 2-3 [Modell HE, EE]

2.6.5 Autofokus-Einstellvorgang

Vor Beginn der Einstellung

Unbedingt diese Einstellung ausführen, nachdem der Objektivblock, Teile des Autofokus-Schaltkreises und der VCA-Leiterplatte (EEPROM) ausgetauscht oder initialisiert wurden.

(1) Das MAP starten.

(2) Die Anzeige 2-6 beachten.

(3) Die **D**-Taste drücken.

(4) Die Anzeige 5-1 beachten.

(5) Die Nummer der erforderlichen Einstellung wählen.

Hinweis: Um die Einstellung zu beenden, die [ESC] (Escape) Taste zweimal drücken, um wiederum die MS-DOS Anzeige zu erhalten, und danach den Video-Kamerarecorder und die Vorrichtung ausschalten.

(1) Einstellung der Zoom-Nachführung

Zweck:
Einstellen des Unschärfe-Berichtigungspegels während des Zoomens.

Problem bei unvollkommener Einstellung:
Scharfeinstellung geht während des Zoomens verloren.

Ausrüstung/Vorrichtung:
Video-Farbmonitor
Rückfokus-Diagramm

Prüfpunkt:
Video-Ausgangsbuchse

Anzeige und Abbildung

Anzeige 2-6

EINSTELLMENÜ

```
*********************************************
       MANUAL ADJUSTMENT PROGRAM
*********************************************
 [A]          DATA INITIALIZE
 [B]          ADJUSTMENT
 [C]          VCR ADJUSTMENT
 [D]          AUTO FOCUS
 [E]          STABILIZER
 [F]          SPOT NOISE
 [G]          LCD
 [ESC]        END
     Please select [A] - [G] or [ESC]
```

Anzeige 5-1

AUTOFOKUS-EINSTELLMENÜ

```
*********************************************
         AUTO FOCUS ADJUSTMENT
*********************************************
[1]     ADJUSTMENT OF ZOOM/
                   FOCUS TRACKING
[2]     ADJUSTMENT OF
                   AF NOISE LEVEL
[ESC] RETURN TO MENU
      Please select [1], [2] or [ESC]
```

Bedingung:
Auf das Rückfokus-Diagramm in einem Abstand von 1500 ±5 mm von der Objektiv-Oberfläche richten.
Das Diagramm mit 200 - 400 Lux ausleuchten.

Vorsicht während der Einstellung:

1) Den Abstand zwischen dem Diagramm und der Objektiv-Oberfläche genau messen.
2) Das Diagramm möglichst parallel zur Objektiv-Oberfläche anordnen.
3) Das Rückfokus-Diagramm sollte immer in der Mitte des Monitor-Bildschirms angeordnet sein, wenn das Zoom auf das Weitwinkel- und Teleobjektiv-Ende eingestellt ist.
4) Der Einstellvorgang der Zoom-Nachführung ist innerhalb von 2 Minuten beendet, nachdem er gewählt wurde.
5) Während der Einstellung keine Gegenstände zwischen dem Objektiv und dem Diagramm anordnen.

Vorgang:

1) Die Anzeige 5-1 beachten.

2) Die **1**-Taste drücken.
Ab nun die Einstellung gemäß Computer-Anzeige ausführen.
Siehe "4. Fehlermeldungen", wenn eine Fehlermeldung in der Computer-Anzeige erscheint.

(2) Einstellung des AF-Rauschpegels

Zweck:
Einstellen des Rauschpegels.

Problem bei unvollkommener Einstellung:
Es wird einige Zeit benötigt, bis das Objekt scharf eingestellt ist.
Die richtige Scharfeinstellung wird nicht erhalten.

Ausrüstung/Vorrichtung:
Video-Farbmonitor

Prüfpunkt:
Video-Ausgangsbuchse

Bedingung:
Die Kamera auf den automatischen Scharfeinstellmodus einstellen.
Auf einen Lichtkasten ohne eingesetztes Diagramm in einer Entfernung von bis zu 10 cm richten.

Vorsicht während der Einstellung:

1) Den Lichtkasten möglichst parallel zur Objektiv-Oberfläche anordnen.
2) Der Einstellvorgang für den AF-Rauschpegel wird nach 30 Sekunden beendet, nachdem er angewählt wurde.

Vorgang:

1) Die Anzeige 5-1 beachten.

2) Die **2**-Taste drücken.
Ab nun die Einstellung gemäß Computer-Anzeige ausführen.
Siehe "4. Fehlermeldungen", wenn eine Fehlermeldung in der Computer-Anzeige erscheint.

2.6.6 Stabilisator-Abgleichvorgang

[ausgenommen für Typ 568, 563 (für Modell EE), 368, 360]

Vor Beginn der Einstellung

1. Unbedingt diesen Abgleich nach dem Austausch oder der Initialisierung der SPE-Leiterplatte und der VCA-Leiterplatte (EEPROM) durchführen.
2. In diesem Punkt ist beschrieben, wie die Stabilisator-Daten neu geschrieben werden können. Der Durchschnitt der Stabilisator-Daten eingeschrieben.

(1) Das Abgleichprogramm (MAP) starten.

(2) Die Anzeige 2-6 beachten.

(3) Die **E**-Taste drücken.

(4) Die Anzeige 6-1 beachten.

(5) Die **Y**-Taste drücken.

(6) Die Anzeige 6-2 beachten.

(7) Die Stabilisator-Daten werden automatisch neu geschrieben.

(8) Einen beliebige Taste drücken, um auf das HAUPT-MENÜ (MAIN MENU) zurückzukehren.

Hinweis: Um die Einstellung zu beenden, die [ESC] (Escape) Taste zweimal drücken, um die MS-DOS Anzeige wieder herzustellen, und danach den Video-Kamerarecorder und die Vorrichtung ausschalten.

2.6.7 Punktrauschen-Abgleichsvorgang

Vor Beginn der Einstellung

1. Punktrauschen ist das feine weiße Rauschen, das erscheint, wenn der Objektivdeckel nach dem Einschalten der Stromversorgung angebracht wird.
2. Diesen Abgleich nur für Produkte ausführen, bei welchen das Punktrauschen auftritt. (Es kommt jedoch zu keinem Problem, wenn der Abgleich auch bei Produkten ausgeführt wird, die frei von Punktrauschen sind.)
3. Nach dem Austausch des CCD-Bildsensors oder der VCA-Leiterplatte (EEPROM) ist zu überprüfen, ob Punktrauschen auftritt oder nicht, worauf mit dem Abgleich fortzufahren ist.

(1) Das MAP starten.

(2) Die Anzeige 2-6 beachten.

(3) Den Deckel am Objektiv anbringen.

(4) Den Video-Farbmonitor an den Video-Ausgang anschließen.

(5) Ausgenommen für TYP 568, 563 (für Modell EE), 368, 360:
Die **F**-Taste drücken.
Für TYP 568, 563 (für Modell EE), 368, 360:
Die **E**-Taste drücken.

Ab nun die Einstellung gemäß Computer-Anzeige ausführen.
Siehe "4. Fehlermeldungen", wenn eine Fehlermeldung in der Computer-Anzeige erscheint.

Hinweis: Um die Einstellung zu beenden, die [ESC] (Escape) Taste zweimal drücken, um die MS-DOS Anzeige wieder herzustellen, und danach den Video-Kamerarecorder und die Vorrichtung ausschalten.

Anzeige und Abbildung

Anzeige 2-6
HAUPTMENÜ

```
*********************************************
 MANUAL ADJUSTMENT PROGRAM
*********************************************
 [A]        DATA INITIALIZE
 [B]        ADJUSTMENT
 [C]        VCR ADJUSTMENT
 [D]        AUTO FOCUS
 [E]        STABILIZER
 [F]        SPOT NOISE
 [G]        LCD
 [ESC]      END
   Please select [A] - [G] or [ESC]
```

Anzeige 6-1

```
      « DATA WRITING »
 START TO SEND DATA  (Y/N)
```

Anzeige 6-2

```
  FINISHED WRITING DATA.
     PRESS ANY KEY.
```

2.7 Einstellung des Farb-LCD-Monitors [ausgenommen für TYP 660, 368, 360]

2.7.1 Einstellungsvorgang

Vor Beginn der Einstellung

1. Unbedingt diese Einstellung nach dem Austauschen der LCD-Einheit, der Komponenten auf der LCD-Leiterplatte oder der VCA-Leiterplatte (EEPROM) bzw. der Initialisierung des EEPROM ausführen.
2. Das Bild erscheint am LCD-Monitor, wenn der Monitor geöffnet ist. Die Einstellung mit geöffnetem LCD-Monitor ausführen (SW733 auf der CON-Leiterplatte auf OFF gestellt).

(1) MAP starten.

(2) Die anzeige 2-6 beachten.

(3) Ausgenommen für TYP 568, 563 (für Modell EE):
Die **G**-Taste drücken.
Für TYP 568, 563 (für Modell EE):
Die **F**-Taste drücken.

(4) Die Anzeige 7-1 beachten.

(5) Die Nummer der erforderlichen Einstellung wählen.

Hinweise:

1. Um die Einstellung zu beenden, [ESC] (Escape) zweimal drücken, damit die MS-DOS-Anzeige wieder hergestellt wird, und danach den Video-Kamerarecorder und die Vorrichtung ausschalten.
2. Wenn ein Einstellpunkt von dem Farb-LCD-Einstellungsmenü gewählt wird, wird der Einstellungsmodus automatisch eingestellt und das für den Einstellung erforderliche Signal wird von dem Systemsteuerungs-µP geliefert.

(1) Flimmereinstellung

Zweck:
Minimieren des Flimmern auf dem LCD-Bildschirm.
Problem bei unvollkommener Einstellung:
Flimmern ist im Bild vorhanden.
Bedingungen:
Den CAM/OFF/VIDEO-Schalter auf Position VIDEO stellen. Das Abgleichband einsetzen und wiedergeben (Farbbalkenabschnitt).
Vorgang:

1) Die Anzeige 7-1 beachten.

2) Die **1**-Taste drücken.

3) Die Anzeige 7-2 beachten.

4) Die **U**- und **D**-Tasten drücken, bis das Bild am LCD-Bildschirm die optimale Qualität aufweist.

5) Nach Beendigung der Einstellung, die [RETURN (ENTER)]-Taste drücken.

Anzeige und Abbildung

Anzeige 2-6
HAUPTMENÜ

```
********************************************
MANUAL ADJUSTMENT PROGRAM
********************************************
[A]          DATA INITIALIZE
[B]          ADJUSTMENT
[C]          VCR ADJUSTMENT
[D]          AUTO FOCUS
[E]          STABILIZER
[F]          SPOT NOISE
[G]          LCD
[ESC]        END
   Please select [A] - [G] or [ESC]
```

Anzeige 7-1
LCD-EINSTELLUNGSMENÜ

```
********************************************
              LCD ADJUSTMENT
********************************************
  [1]          FLICKER
  [ESC]        RETURN TO MENU
       Please select [1] or [ESC]
```

Anzeige 7-2

```
********************************************
                 XXXXXXX
********************************************
[U]         UP
[D]         DOWN
[RETURN] SAVE & RETURN TO MENU
[ESC]       RETURN TO MENU
  Please select  [U], [D],
                 [RETURN] or [ESC]
```

3. Einstellung des Videorecorder-Abschnitts

3.1 Für die Einstellung erforderliche Ausrüstung und Abgleichbänder

Prüfausrüstung usw.
Digital-Voltmeter (DVM)
Video-Farbmonitor
Gleichstromversorgung (DC 0-8V/3A)
Gleichstromversorgung (DC 5V/1A)
Diskette für die Einstellung
Personal Computer
Personal Computer 9-Stift oder 25-Stift (RS-232C) Kabel
DSP-R Vorrichtung
DSP AV-Ausgangsvorrichtung
8 - 20poliges Verlängerungskabel
ODC-Gleichstromkabel
Abgleichband usw.
Abgleichband
Leer-Cassette

3.2 Einstellbedingung

1. Darauf achten, daß die Kamera-, LCD-Monitor- und EVF-Abschnitte richtig eingestellt wurden, bevor der Videorecorderabschnitt eingestellt wird.
2. Diese Einheit, eine Stromversorgung und einen Video-Farbmonitor gemäß Abb. 1-1 anschließen.
3. Die 10:1 Sonde des Oszilloskops verwenden, wenn nicht anders angegeben.
4. Wenn der "Aufnahmemodus" spezifiziert ist, eine Leer-Cassette einsetzen und den 8 mm Video-Kamerarecorder durch den folgenden Vorgang auf den Aufnahmemodus schalten.
   1) Den CAM/OFF/VIDEO-Schalter auf Position CAM stellen.
   2) Den SUB POWER-Schalter auf Position STANDBY stellen.
   3) Die REC START/STOP Taste an dieser Einheit drücken (oder die REC START/STOP-Taste auf der Fernbedienung).
5. Erdung der Prüfeinrichtung: Vorverstärker-Abschirmung (GND)

3.3 Voreingestellte Positionen der Schalter und Regler während der Einstellung

CAM/OFF/VIDEO-Schalter .... Position "VIDEO"
TITLE .... Kein Display-Modus
PAL CONV des Menü .... OFF-Modus

3.4 Nach dem Austauschen von wichtigen Komponenten in dem Recorder-Abschnitt prüfen

Nach dem Austausch von wichtigen Komponenten die in der nachfolgenden Tabelle aufgeführten Prüfungen ausführen. Die nachfolgende Tabelle zeigt die Einstellungen, die nach dem Austausch von wichtigen Teilen ausgeführt werden müssen. Die nachfolgende Tabelle trifft vielleicht nicht zu, wenn mehrere Komponenten ausgetauscht wurden, abhängig von dem Symptom des Defekts.

Hinweis: Nach dem Austausch der Teile, jede Einstellung überprüfen. Falls bestimmte Punkte eingestellt werden müssen, die entsprechenden Laser-Trimming-Widerstände entfernen und durch Regelwiderstände für die Einstellung ersetzen.

Benennung	Name der Einstellung	Name der Einstellung		
		VCA-Leiterplatte	Kopftrommel	IC901
Einstellung der Systemregelungs/Servo-Schaltkreis				
(1)	Einstellung des Stromabschaltpegels	●		●
(2)	Einstellung des Kopfwechselpunktes	●	●	●

3.5 Einstellung der Systemregelungs/Servo-Schaltkreise

Vor Beginn der Einstellung

1. Für die Systemregelungs/Servo-Einstellung wirdebenfalls ein Personal Computer benötigt. Den Video-Kamerarecorder, die Vorrichtungen, die Stromversorgung usw. gleich wie für die Einstellung des Kameraabschnitts anschließen.
2. Unbedingt diese Einstellung ausführen, nachdem der EEPROM und die VCA-Leiterplatte ausgetauscht oder initialisiert wurden.
3. Wenn eine Fehlermeldung während der Einstellung erscheint, siehe "4. Fehlermeldungen".
4. Falls die [ESC] (Escape) Taste gedrückt wird, kehrt das Display des Computers auf das HAUPTMENÜ zurück.
5. Um die Einstellung zu beenden, die [ESC] (Escape) Taste zweimal drücken, um wiederum die MS-DOS Anzeige zu erhalten, und danach den Video-Kamerarecorder und die Vorrichtung ausschalten.

(1) Das MAP starten.

(2) Die Anzeige 2-6 beachten.

(3) Die **C**-Taste drücken.

(4) Die Anzeige 8-1 beachten.

(5) Die Nummer der erforderlichen Einstellung wählen.

(1) Einstellung des Stromabschaltpegels (ODC: Over Discharge Control = Überentladesteuerung)

Zweck:
Einstellen der minimalen Spannung, die für den Betrieb des Video-Kamerarecorders erforderlich ist.
Problem bei unvollkommener Einstellung:
Die nutzbare Zeit des Akkus wird verkürzt.
Der Video-Kamerarecorder arbeitet nicht normal.
Ausrüstung/Vorrichtung:
DVM
Gleichstromversorgung (0 - 8V)
Leer-Cassette
ODC-Gleichstromkabel
Bedingung:
Die Kamera-, LCD-Monitor- und EVF-Abschnittes verbinden.
Eine Spannung von 8,0 V ±0,5 V über das ODC-Gleichstromkabel an die DC IN-Buchse anlegen.
Den LCD-Monitor öffnen (LCD ON).
Das Objektiv mit dem Deckel abdecken.
Eine Leer-Cassette laden.
Vorgang:

1) Die Anzeige 8-1 beachten.

2) Die **1**-Taste drücken.

3) Die Anzeige 8-2 beachten.

4) Die Spannung auf 5,8V ±0,05 V einstellen.

5) Eine beliegibe Taste drücken.

6) Die Anzeige 8-3 beachten.

7) Eine beliebige Taste drücken, um auf das VIDEORECORDER-EINSTELLMENÜ zurückzukehren.

(2) Einstellung des Kopfwechselpunktes

Hinweis: Unbedingt den Abgleich ausführen, nachdem die Kopftrommeleinheit und die VCA-Leiterplatte ausgetauscht wurden.

Zweck:
Einstellung des Kopfwechselpunktes.
Problem bei unvollkommener Einstellung:
Es kommt zu vertikalem Jitter.
Schaltrauschen erscheint auf der Unterseite des Monitor-Bildschirms.
Ausrüstung/Vorrichtung:
Abgleichband
Bedingung:
Das Abgleichband wiedergeben.
Vorgang:

1) Die Anzeige 8-1 beachten.

2) Die **2**-Taste drücken.

3) Die Anzeigen 8-4, 8-5 und 8-6 beachten.

4) Eine beliebige Taste drücken, um auf das VIDEORECORDER-EINSTELLMENÜ zurückzukehren.

5) Die Stromversorgung ausschalten.

Anzeige und Abbildung

Anzeige 2-6
HAUPTMENÜ

```
********************************************
 MANUAL ADJUSTMENT PROGRAM
********************************************
 [A]        DATA INITIALIZE
 [B]        ADJUSTMENT
 [C]        VCR ADJUSTMENT
 [D]        AUTO FOCUS
 [E]        STABILIZER
 [F]        SPOT NOISE
 [G]        LCD
 [ESC]      END
   Please select [A] - [G] or [ESC]
```

Anzeige 8-1
VIDEORECORDER-EINSTELLMENÜ

```
********************************************
          VCR ADJUSTMENT
********************************************
[1]   ADJUSTMENT OF ODC
[2]   ADJUSTMENT OF
              SWITCHING POINT
[ESC] RETURN TO MAIN MENU
     Please select [1], [2] or [ESC]
```

Anzeige 8-2

```
 « SET UP OF ODC
        ADJUSTMENT STARTED »
 PRESET POSITION OF
      'CAMERA/OFF/VCR' SWITCH
         'VCR' POSITION
SET POWER SOURCE AT 5.8 (+/- 0.05)
```

Anzeige 8-3

```
 « SETUP OF ODC
      ADJUSTMENT COMPLETED »
 « ODC ADJUSTMENT STARTED »
« ODC ADJUSTMENT COMPLETED »
        PRESS ANY KEY.
```

Anzeige 8-4

```
 « ADJUSTMENT OF
          SWITCHING POINT »
 PRESET POSITIONS OF
    'CAMERA/OFF/VCR' SWITCH
        'VCR' POSITION
        PRESS ANY KEY
```

Anzeige 8-5

```
SET UP OF SW POINT
        ADJUSTMENT STARTED.
SET UP OF SW POINT
     ADJUSTMENT COMPLETED.
SW POINT ADJUSTMENT STARTED.
```

Anzeige 8-6

```
SW POINT ADJUSTMENT
            DATA CHEACKING.
   FINISHED WRITING DATA.
    ADJUSTMENT FINISHED.
       PRESS ANY KEY.
```

4. Fehlermeldungen

4.1 Kamera-Digital-Einstellung

Fehlermeldung	*Gegenmaßnahme*
ERROR OCCURRED. IRIS TROUBLE PRESS ANY KEY	• Überprüfen, ob Strom angelegt wird oder nicht. • Die Werte des Blenden-Treiberkreises überprüfen. • Lötung defekt, Leiterbahn beschädigt usw. im oberen Schaltkreis. • Den Blendenblock überprüfen und ggf. erneuern.
ERROR OCCURRED ON dax ADJUSTMENT PRESS ANY KEY	• Die Werte in dem Hall-Verstärker-Schaltkreis überprüfen. • Lötung defekt, Leiterbahn beschädigt usw. im oberen Schaltkreis.
D RANGE OVER. ERROR ON dax ADJUSTMENT PRESS ANY KEY	• Die Werte in dem Hall-Verstärker-Schaltkreis überprüfen. • Lötung defekt, Leiterbahn beschädigt usw. im oberen Schaltkreis.
ERROR OCCURRED ERROR ON da0 and da1 ADJUSTMENT PRESS ANY KEY	• Die Werte in dem Hall-Verstärker-Schaltkreis und seinen Peripherie-Schaltkreisen überprüfen. • Lötung defekt, Leiterbahn beschädigt usw. on den obigen Schaltkreisen.
FILE NOT FOUND !!!! PRESS ANY KEY	• Das Einstellprogramm (Datei) kann nicht gefunden werden. • Die Diskette für die Einstellung überprüfen und erneuern, wenn erforderlich.
FILE OPEN ERROR !!!! PRESS ANY KEY	• Das Einstellprogramm (Datei) startet nicht. • Die Diskette für die Einstellung überprüfen und erneuern, wenn erforderlich.
ERROR OCCURRED ON C DUTY ADJUSTMENT PRESS ANY KEY	• Die Werte des Blenden-Treiberkreises überprüfen. • Lötung defekt, Leiterbahn beschädigt usw. im oberen Schaltkreis.
ERROR OCCURRED ON FDET ADJUSTMENT PRESS ANY KEY	• Stromversorgung nochmals einschalten und Einstellung nochmals vornehmen. • Die Werte in dem Hall-Verstärker-Schaltkreis überprüfen. • Lötung defekt, Leiterbahn beschädigt usw. im obigen Schaltkreis.
ERROR OCCURRED. ZOOM DOES NOT WORK PRESS ANY KEY	• Stromversorgung nochmals einschalten und Einstellung nochmals vornehmen.
TOO BRIGHT PRESS ANY KEY	• Das Objekt ist zu hell. • Die Kamera von dem Lichtkasten etwas entfernen.
TOO DARK PRESS ANY KEY	• Das Objekt ist zu dunkel. • Den Lichtkasten überprüfen. • Die Kamera näher an den Lichtkasten heranbringen.
D RANGE OVER ERROR ON HALL AMP IRIS CANNOT OPEN ANY MORE PRESS ANY KEY	• Stromversorgung nochmals einschalten und Einstellung nochmals vornehmen. • Das Objekt ist zu dunkel. • Den Lichtkasten überprüfen. • Die Kamera näher an den Lichtkasten heranbringen. • Die Werte in dem Hall-Verstärker-Schaltkreis überprüfen. • Lötung defekt, Leiterbahn beschädigt usw. im obigen Schaltkreis.
SATURATION ERROR. TOO BRIGHT PRESS ANY KEY	• Das Objekt ist zu hell. • Die Kamera von dem Lichtkasten etwas entfernen.
CAN'T ADJUST WHILE BALANCE PLEASE RETRY PRESS ANY KEY	• Das Objekt ist zu hell oder zu dunkel. • Den Lichtkasten überprüfen. • Die Kamera näher an den Lichtkasten heranbringen oder etwas von diesem entfernen. • Stromversorgung nochmals einschalten und Einstellung nochmals vornehmen.

4.2 Autofokus-Einstellung

Fehlermeldung	***Gegenmaßnahme***
TIME OUT ERROR ON FOCUS	• Bedingungen des Objekts überprüfen. • Falls diese Fehlermeldung erscheint, auch wenn die Einstellung zwei- bis dreimal ausgeführt wurde, ist das Autofokus-Schaltkreissystem defekt. • Siehe (1) der Störungsbeseitigung des Autofokus.
TIME OUT ERROR ON ZOOM	• Falls diese Fehlermeldung erscheint, auch wenn die Einstellung zwei- bis dreimal ausgeführt wurde, ist das Autofokus-Schaltkreissystem defekt. • Siehe (2) der Störungsbeseitigung des Autofokus.
TIME OUT ERROR ON AF STEP	• Bedingungen des Objekts überprüfen. • Falls diese Fehlermeldung erscheint, auch wenn die Einstellung zwei- bis dreimal ausgeführt wurde, ist das Autofokus-Schaltkreissystem defekt. • Siehe (1) der Störungsbeseitigung des Autofokus.
AF LIMIT OVER	• Bedingungen des Objekts überprüfen. • Falls diese Fehlermeldung erscheint, auch wenn die Einstellung zwei- bis dreimal ausgeführt wurde, ist das Autofokus-Schaltkreissystem defekt. • Siehe (2) der Störungsbeseitigung des Autofokus.
AF ERROR	• Falls diese Fehlermeldung erscheint, auch wenn die Einstellung zwei- bis dreimal ausgeführt wurde, ist das Autofokus-Schaltkreissystem defekt. • Siehe (1) der Störungsbeseitigung des Autofokus.
TOO DARK	• Unzureichende Beleuchtung. Das Objekt überprüfen.

4.3 Punktrauschenabgleich

Fehlermeldung	***Gegenmaßnahme***
ERROR!! SPOT NOISE COMPENSATION IS STOPPED BY INITIAL DATA. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	• Die Kompensation für Punktrauschen ist durch die Daten im EEPROM gesperrt. • Die Stromversorgung erneut einschalten. • Die Daten im EEPROM sind defekt. (Diesen initialisieren.) • Den EEPROM prüfen und erneuern, wenn erforderlich.
ERROR!! THRESHOLD DATA ERROR. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	• Die Stromversorgung erneut einschalten. • Die Daten im EEPROM sind defekt. (Diesen initialisieren.) • Den EEPROM überprüfen und erneuern, wenn erforderlich.
ERROR!! THE SPOT NOISE IS TOO MANY. CAN NOT COMPENSATE ANY MORE. PRESS ANY KEY.	• Der Grenzwert des zu kompensierenden Punktrauschens ist erreicht. • Die Stromversorgung erneut einschalten. • Den CCD-Bildsensor überprüfen und erneuern, wenn erforderlich.

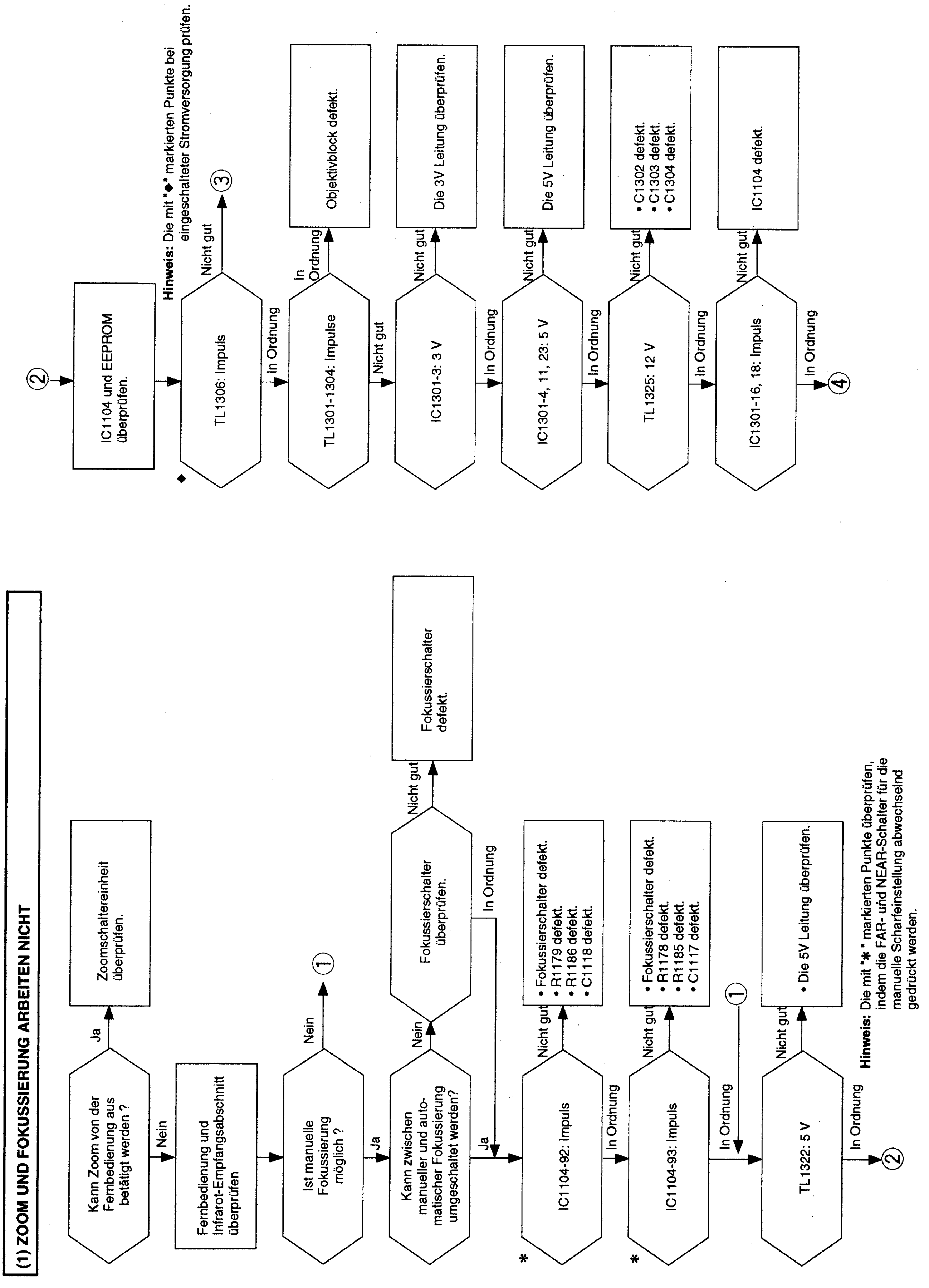
4.4 Videorecorder-Einstellung

Fehlermeldung	*Gegenmaßnahme*
ERROR: SWP_TEST > DAT FILE NOT FOUND !	• Das Einstellprogramm kann nicht gefunden werden. • Die Diskette für die Einstellung überprüfen und erneuern, wenn erforderlich.
ERROR: INVALID MODEL PRESS ANY KEY	• Ein falsches Modell wurde gewählt. • Das Einstellprogramm kann nicht gefunden werden. • Die Diskette für die Einstellung überprüfen und erneuern, wenn erforderlich.
THIS MODEL NEED NOT BE ADJUSTED PRESS ANY KEY	• Ein falsches Modell wurde gewählt. • Ein Produkt, das eine Analog-Einstellung benötigt, ist angeschlossen.
ADJUSTMENT INCOMPLETED PRESS ANY KEY	• Der durch die Einstellung eingestellte Wert ist falsch. • Nochmals einstellen. • Die Kopftrommel kontrollieren. • Das Abgleichband kontrollieren. • Überprüfen, ob der normale Vorgang richtig ausgeführt wird oder nicht.
RETRY ADJUSTING. PRESS ANY KEY	• Stromversorgung nochmals einschalten und Einstellung nochmals vornehmen.
CAMERA IS NOT READY	• Überprüfen, ob Strom angelegt wird oder nicht.
ERROR OCCURRED. CAN'T PLAY BACK PRESS ANY KEY	• Kein Wiedergabe-Video • Das Wiedergabesignal überprüfen.
ERROR OCCURRED. NO V.SYNC FOUND PRESS ANY KEY	• Vertikaler Synchronverlust • Das Vertikal-Synchronsignal überprüfen.
INVALID MODEL PRESS ANY KEY	• Ein falsches Modell wurde gewählt. • Das Einstellprogramm kann nicht gefunden werden. • Die Diskette für die Einstellung überprüfen und erneuern, wenn erforderlich.
ERROR OCCURRED CAN'T RECORD PRESS ANY KEY	• Keine Video-Aufnahme • Das Aufnahmesignal überprüfen.

Notiz

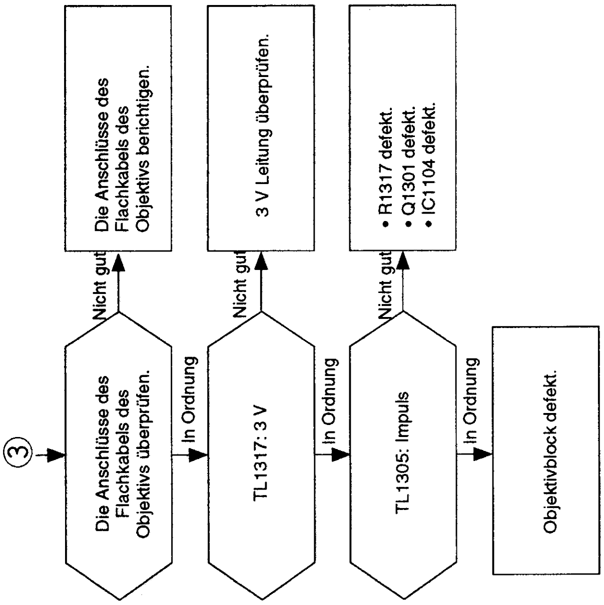
5. Fehlermeldungen des Autofokus

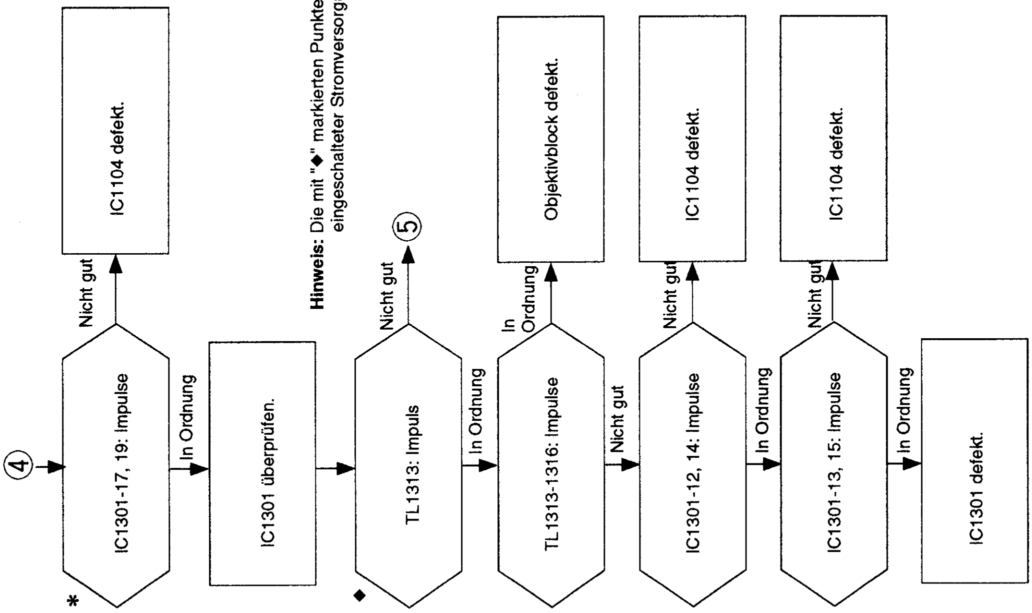
(1) ZOOM UND FOKUSSIERUNG ARBEITEN NICHT


Kann Zoom von der Fernbedienung aus betätigt werden ?
Ja
Zoomschaltereinheit überprüfen.
Nein
Fernbedienung und Infrarot-Empfangsabschnitt überprüfen
Ist manuelle Fokussierung möglich ?
Nein
①
Ja
Kann zwischen manueller und automatischer Fokussierung umgeschaltet werden?
Nein
Fokussierschalter überprüfen.
Nicht gut
Fokussierschalter defekt.
In Ordnung
Ja
*
IC1104-92: Impuls
Nicht gut
• Fokussierschalter defekt.
• R1179 defekt.
• R1186 defekt.
• C1118 defekt.
In Ordnung
*
IC1104-93: Impuls
Nicht gut
• Fokussierschalter defekt.
• R1178 defekt.
• R1185 defekt.
• C1117 defekt.
In Ordnung
①
TL1322: 5 V
Nicht gut
• Die 5V Leitung überprüfen.
In Ordnung
②
②
IC1104 und EEPROM überprüfen.
◆
TL1306: Impuls
Nicht gut
③
In Ordnung
TL1301-1304: Impulse
In Ordnung
Objektivblock defekt.
Nicht gut
IC1301-3: 3 V
Nicht gut
Die 3V Leitung überprüfen.
In Ordnung
IC1301-4, 11, 23: 5 V
Nicht gut
Die 5V Leitung überprüfen.
In Ordnung
TL1325: 12 V
Nicht gut
• C1302 defekt.
• C1303 defekt.
• C1304 defekt.
In Ordnung
IC1301-16, 18: Impuls
Nicht gut
IC1104 defekt.
In Ordnung
④

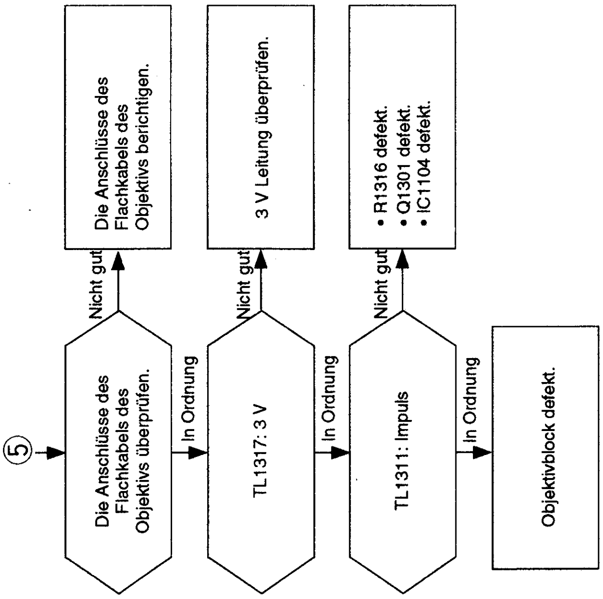
Hinweis: Die mit "*" markierten Punkte überprüfen, indem die FAR- und NEAR-Schalter für die manuelle Scharfeinstellung abwechselnd gedrückt werden.

Hinweis: Die mit "◆" markierten Punkte bei eingeschalteter Stromversorgung prüfen.

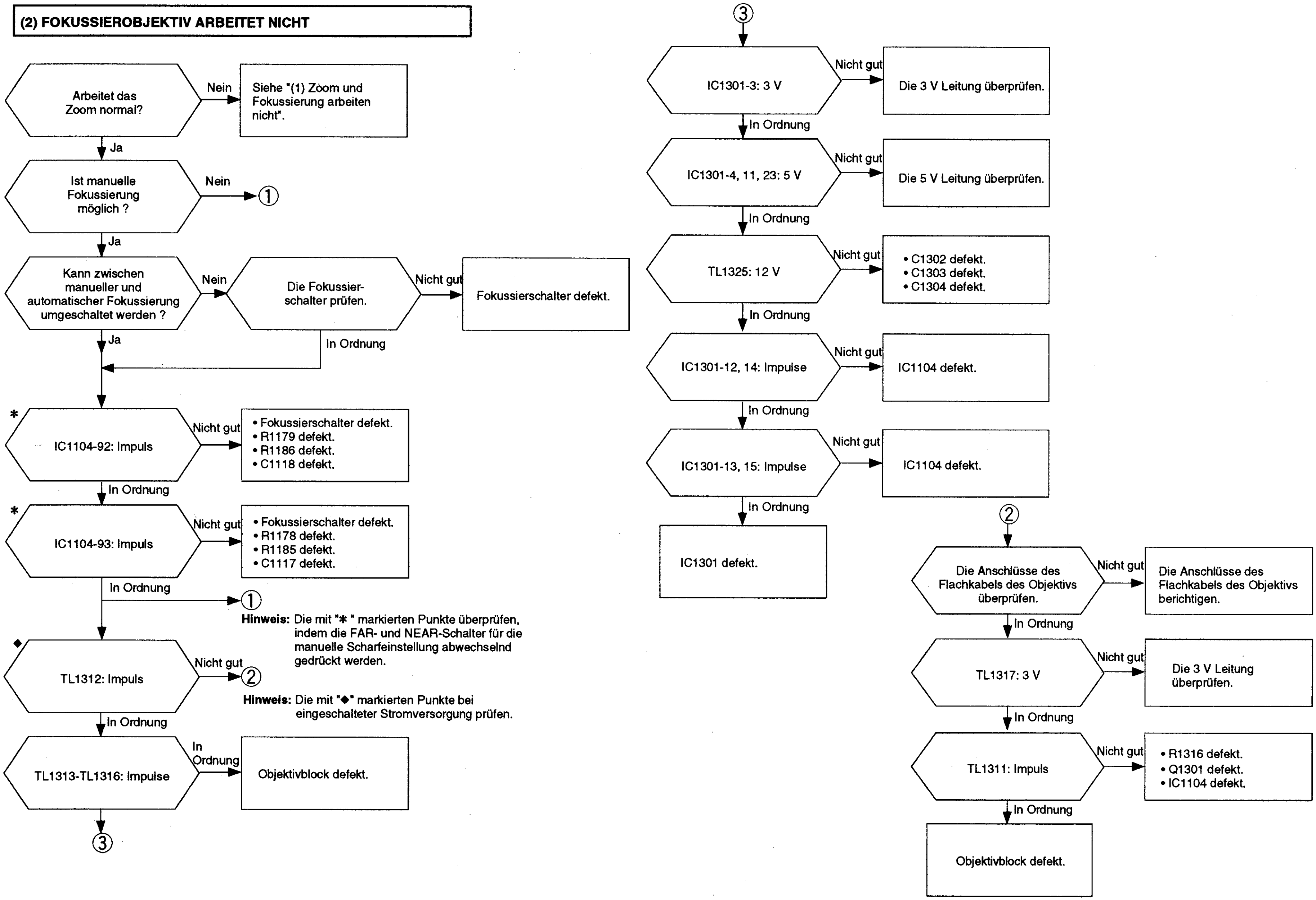

③
Die Anschlüsse des Flachkabels des Objektivs überprüfen.
Nicht gut
Die Anschlüsse des Flachkabels des Objektivs berichtigen.
In Ordnung
TL1317: 3 V
Nicht gut
3 V Leitung überprüfen.
In Ordnung
TL1305: Impuls
Nicht gut
• R1317 defekt.
• Q1301 defekt.
• IC1104 defekt.
In Ordnung
Objektivblock defekt.


④
*
IC1301-17, 19: Impulse
Nicht gut
IC1104 defekt.
In Ordnung
IC1301 überprüfen.
◆
TL1313: Impuls
Nicht gut
⑤
In Ordnung
TL1313-1316: Impulse
In Ordnung
Objektivblock defekt.
Nicht gut
IC1301-12, 14: Impulse
Nicht gut
IC1104 defekt.
In Ordnung
IC1301-13, 15: Impulse
Nicht gut
IC1104 defekt.
In Ordnung
IC1301 defekt.

Hinweis: Die mit "◆" markierten Punkte bei eingeschalteter Stromversorgung prüfen.


⑤
Die Anschlüsse des Flachkabels des Objektivs überprüfen.
Nicht gut
Die Anschlüsse des Flachkabels des Objektivs berichtigen.
In Ordnung
TL1317: 3 V
Nicht gut
3 V Leitung überprüfen.
In Ordnung
TL1311: Impuls
Nicht gut
• R1316 defekt.
• Q1301 defekt.
• IC1104 defekt.
In Ordnung
Objektivblock defekt.

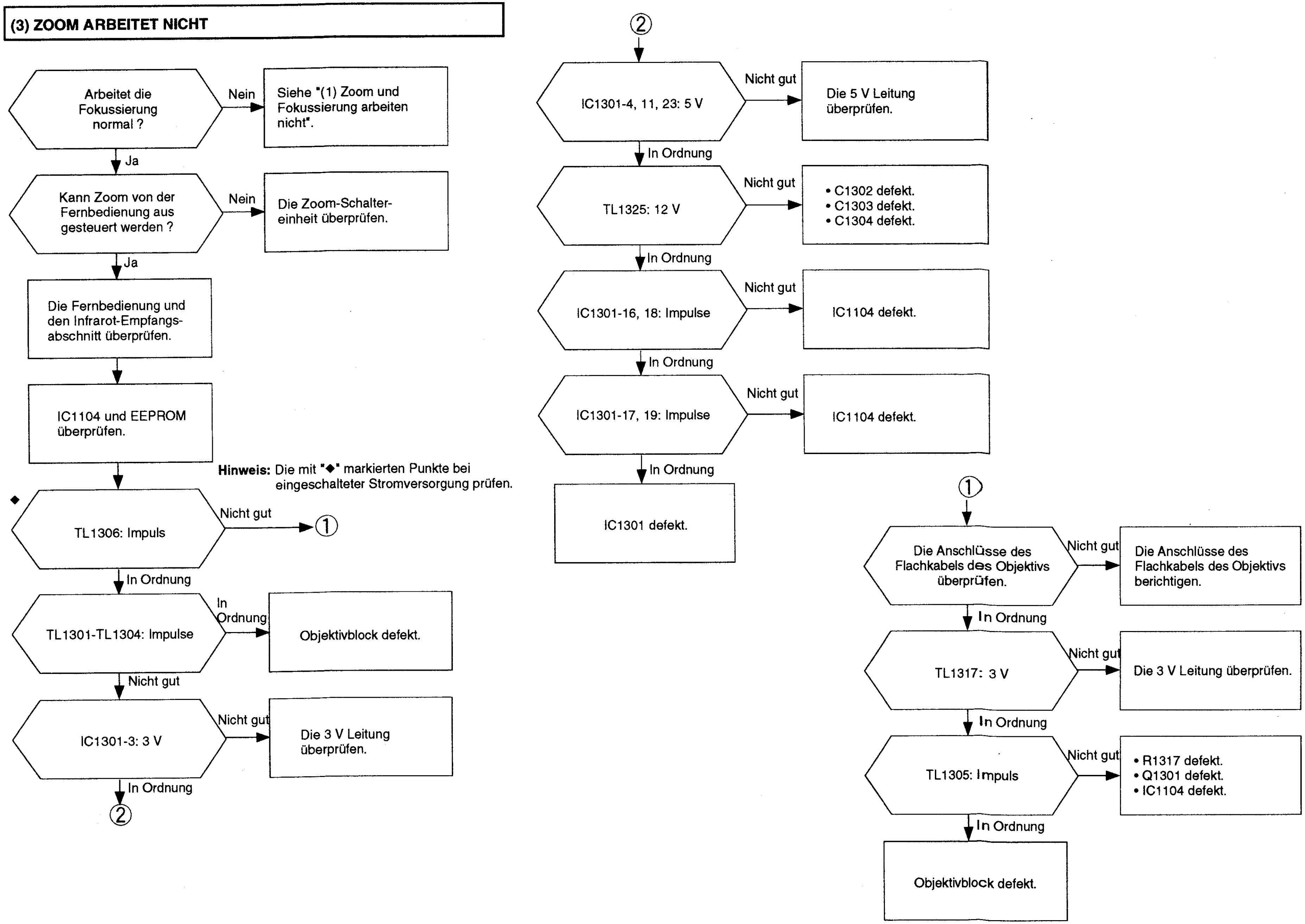
(2) FOKUSSIEROBJEKTIV ARBEITET NICHT


Arbeitet das Zoom normal?
Nein
Siehe "(1) Zoom und Fokussierung arbeiten nicht".
Ja
Ist manuelle Fokussierung möglich ?
Nein
①
Ja
Kann zwischen manueller und automatischer Fokussierung umgeschaltet werden ?
Nein
Die Fokussier-schalter prüfen.
Nicht gut
Fokussierschalter defekt.
In Ordnung
Ja
*
IC1104-92: Impuls
Nicht gut
• Fokussierschalter defekt.
• R1179 defekt.
• R1186 defekt.
• C1118 defekt.
In Ordnung
*
IC1104-93: Impuls
Nicht gut
• Fokussierschalter defekt.
• R1178 defekt.
• R1185 defekt.
• C1117 defekt.
In Ordnung
①
◆
TL1312: Impuls
Nicht gut
②
In Ordnung
TL1313-TL1316: Impulse
In Ordnung
Objektivblock defekt.
③
③
IC1301-3: 3 V
Nicht gut
Die 3 V Leitung überprüfen.
In Ordnung
IC1301-4, 11, 23: 5 V
Nicht gut
Die 5 V Leitung überprüfen.
In Ordnung
TL1325: 12 V
Nicht gut
• C1302 defekt.
• C1303 defekt.
• C1304 defekt.
In Ordnung
IC1301-12, 14: Impulse
Nicht gut
IC1104 defekt.
In Ordnung
IC1301-13, 15: Impulse
Nicht gut
IC1104 defekt.
In Ordnung
IC1301 defekt.
②
Die Anschlüsse des Flachkabels des Objektivs überprüfen.
Nicht gut
Die Anschlüsse des Flachkabels des Objektivs berichtigen.
In Ordnung
TL1317: 3 V
Nicht gut
Die 3 V Leitung überprüfen.
In Ordnung
TL1311: Impuls
Nicht gut
• R1316 defekt.
• Q1301 defekt.
• IC1104 defekt.
In Ordnung
Objektivblock defekt.

Hinweis: Die mit "*" markierten Punkte überprüfen, indem die FAR- und NEAR-Schalter für die manuelle Scharfeinstellung abwechselnd gedrückt werden.

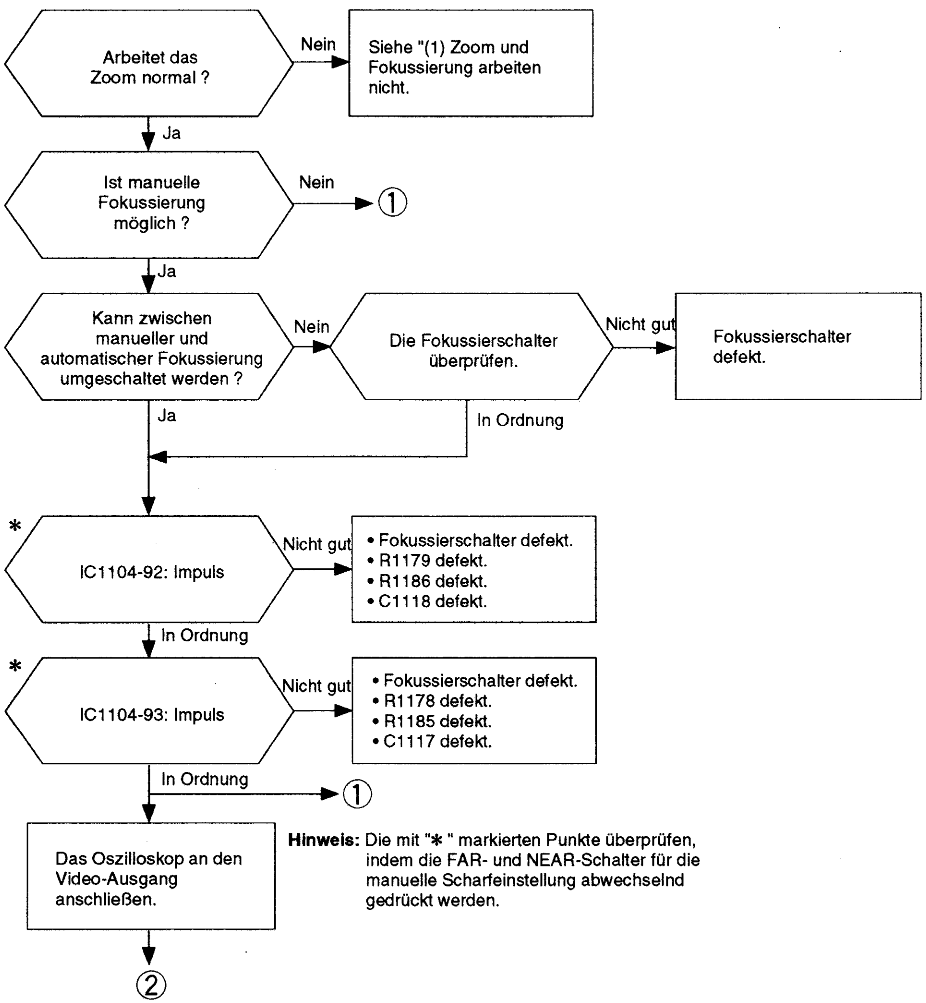
Hinweis: Die mit "◆" markierten Punkte bei eingeschalteter Stromversorgung prüfen.

(3) ZOOM ARBEITET NICHT

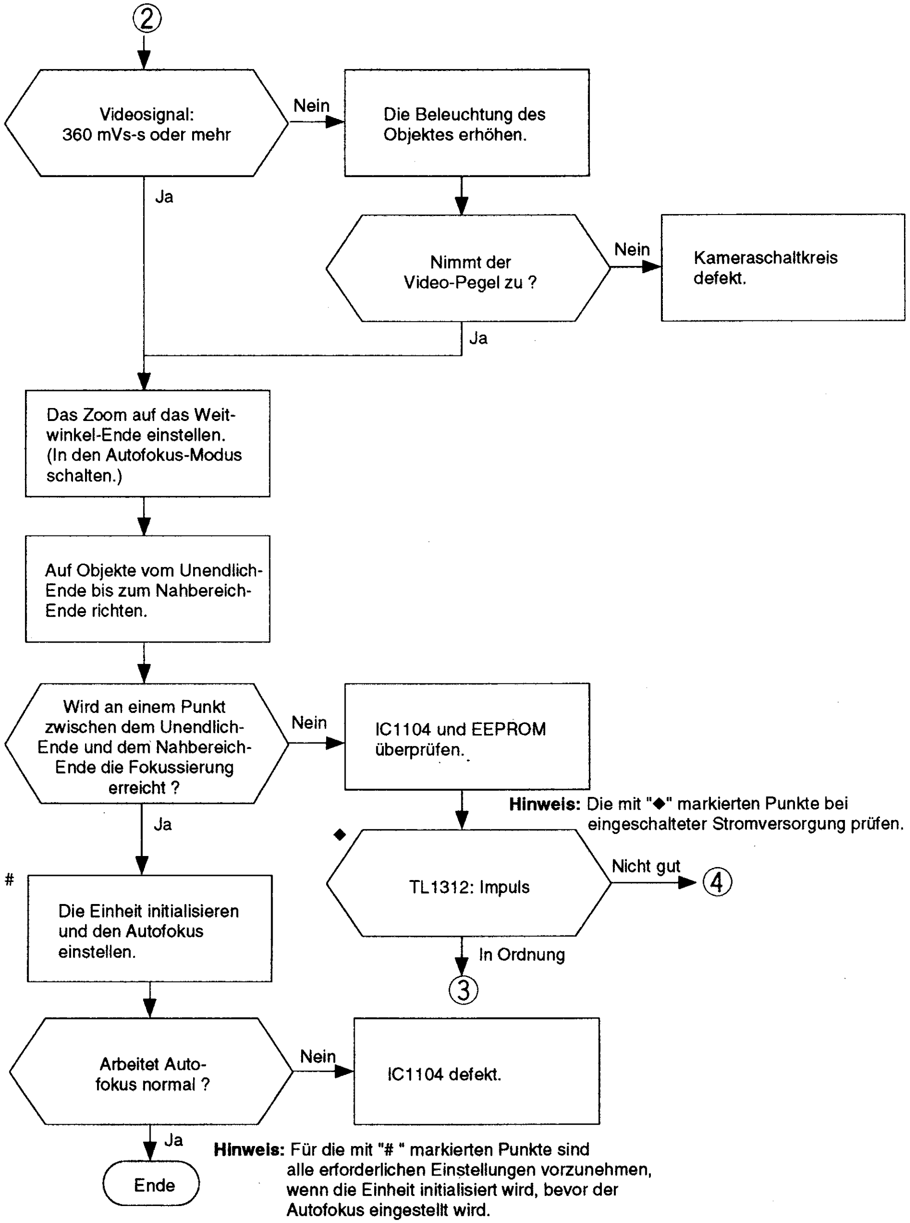

Arbeitet die Fokussierung normal ?
Nein
Siehe "(1) Zoom und Fokussierung arbeiten nicht".
Ja
Kann Zoom von der Fernbedienung aus gesteuert werden ?
Nein
Die Zoom-Schalter-einheit überprüfen.
Ja
Die Fernbedienung und den Infrarot-Empfangs-abschnitt überprüfen.
IC1104 und EEPROM überprüfen.
◆
TL1306: Impuls
Nicht gut
①
In Ordnung
TL1301-TL1304: Impulse
In Ordnung
Objektivblock defekt.
Nicht gut
IC1301-3: 3 V
Nicht gut
Die 3 V Leitung überprüfen.
In Ordnung
②
②
IC1301-4, 11, 23: 5 V
Nicht gut
Die 5 V Leitung überprüfen.
In Ordnung
TL1325: 12 V
Nicht gut
• C1302 defekt.
• C1303 defekt.
• C1304 defekt.
In Ordnung
IC1301-16, 18: Impulse
Nicht gut
IC1104 defekt.
In Ordnung
IC1301-17, 19: Impulse
Nicht gut
IC1104 defekt.
In Ordnung
IC1301 defekt.
①
Die Anschlüsse des Flachkabels des Objektivs überprüfen.
Nicht gut
Die Anschlüsse des Flachkabels des Objektivs berichtigen.
In Ordnung
TL1317: 3 V
Nicht gut
Die 3 V Leitung überprüfen.
In Ordnung
TL1305: Impuls
Nicht gut
• R1317 defekt.
• Q1301 defekt.
• IC1104 defekt.
In Ordnung
Objektivblock defekt.

Hinweis: Die mit "◆" markierten Punkte bei eingeschalteter Stromversorgung prüfen.

(4) AUTOFOKUS ARBEITET NICHT

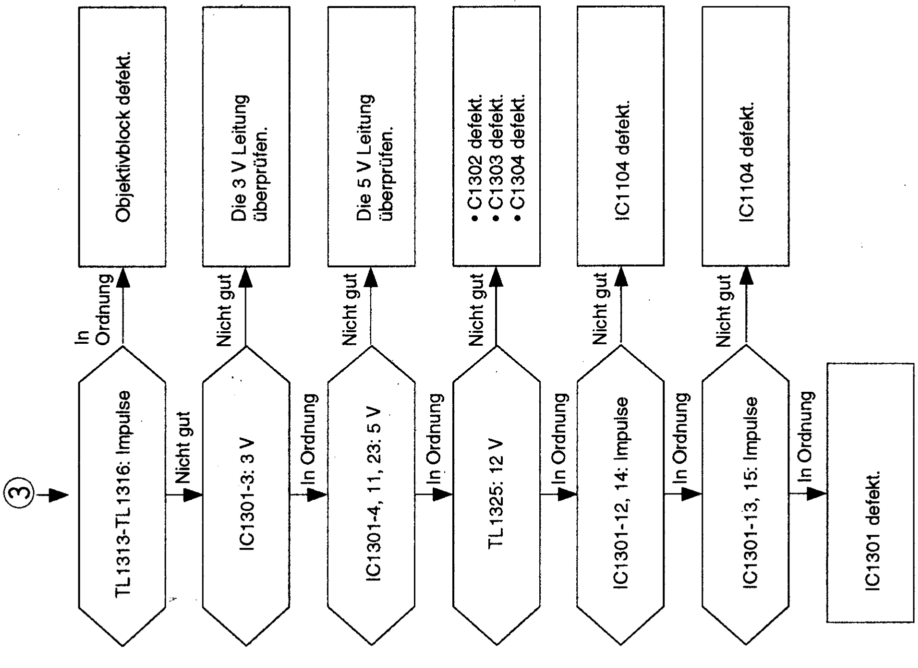

Arbeitet das Zoom normal ?
Nein
Siehe "(1) Zoom und Fokussierung arbeiten nicht.
Ja
Ist manuelle Fokussierung möglich ?
Nein
①
Ja
Kann zwischen manueller und automatischer Fokussierung umgeschaltet werden ?
Nein
Die Fokussierschalter überprüfen.
Nicht gut
Fokussierschalter defekt.
In Ordnung
Ja
*
IC1104-92: Impuls
Nicht gut
• Fokussierschalter defekt.
• R1179 defekt.
• R1186 defekt.
• C1118 defekt.
In Ordnung
*
IC1104-93: Impuls
Nicht gut
• Fokussierschalter defekt.
• R1178 defekt.
• R1185 defekt.
• C1117 defekt.
In Ordnung
①
Das Oszilloskop an den Video-Ausgang anschließen.
②

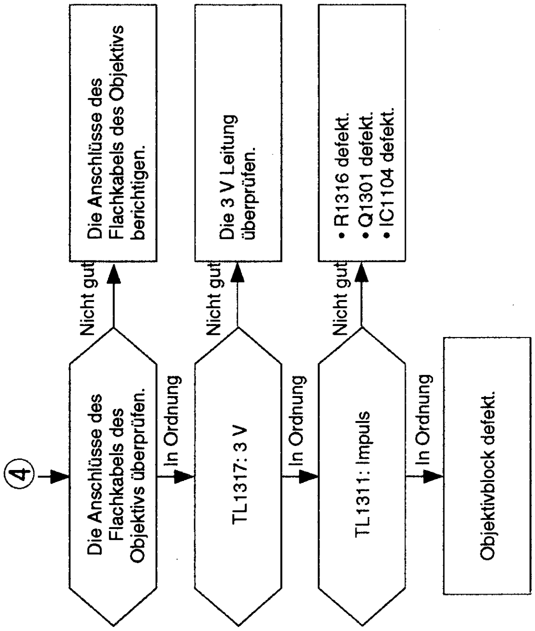
Hinweis: Die mit "∗" markierten Punkte überprüfen, indem die FAR- und NEAR-Schalter für die manuelle Scharfeinstellung abwechselnd gedrückt werden.


②
Videosignal: 360 mVs-s oder mehr
Nein
Die Beleuchtung des Objektes erhöhen.
Nimmt der Video-Pegel zu ?
Nein
Kameraschaltkreis defekt.
Ja
Ja
Das Zoom auf das Weitwinkel-Ende einstellen. (In den Autofokus-Modus schalten.)
Auf Objekte vom Unendlich-Ende bis zum Nahbereich-Ende richten.
Wird an einem Punkt zwischen dem Unendlich-Ende und dem Nahbereich-Ende die Fokussierung erreicht ?
Nein
IC1104 und EEPROM überprüfen.
◆
TL1312: Impuls
Nicht gut
④
In Ordnung
③
Ja
#
Die Einheit initialisieren und den Autofokus einstellen.
Arbeitet Autofokus normal ?
Nein
IC1104 defekt.
Ja
Ende

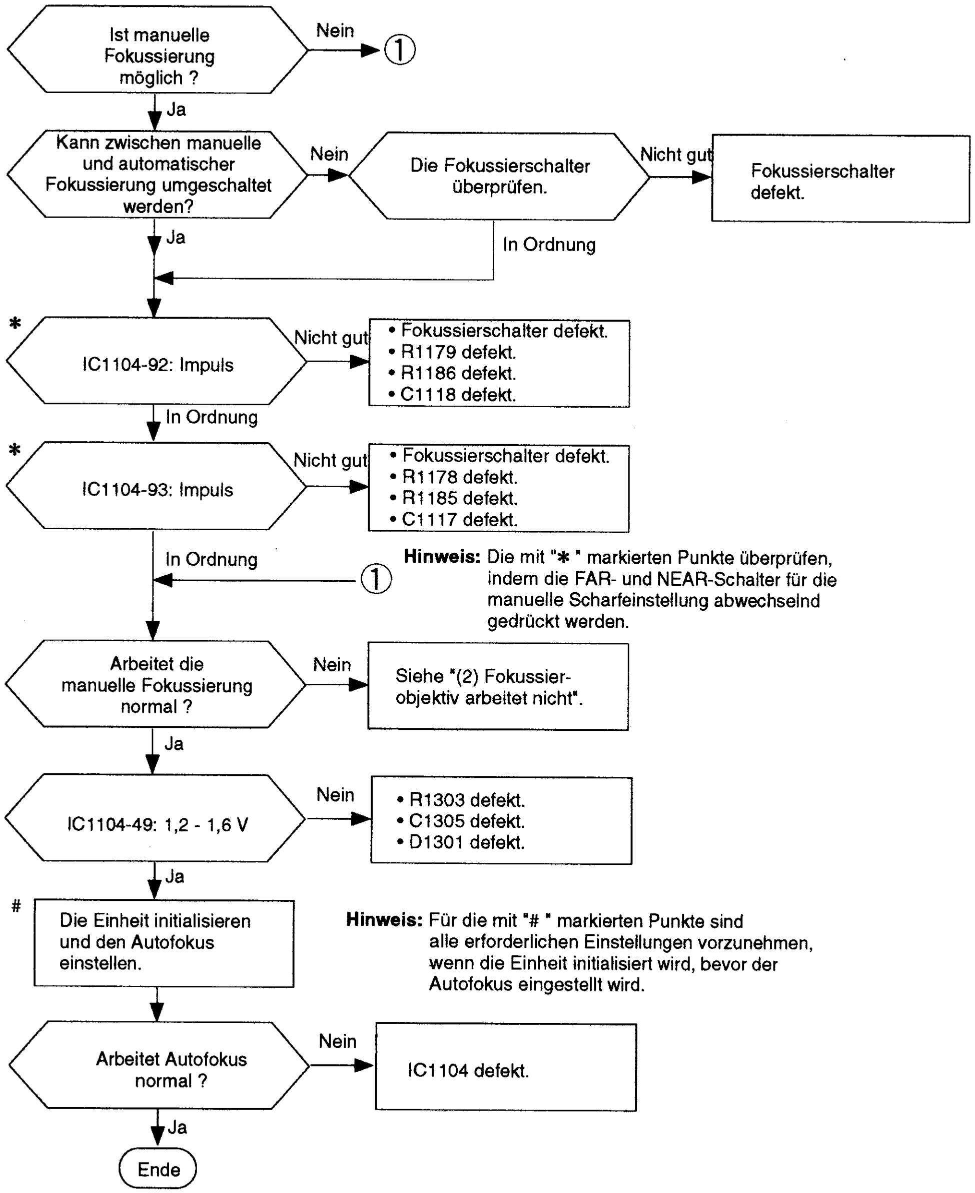
Hinweis: Die mit "◆" markierten Punkte bei eingeschalteter Stromversorgung prüfen.

Hinweis: Für die mit "# " markierten Punkte sind alle erforderlichen Einstellungen vorzunehmen, wenn die Einheit initialisiert wird, bevor der Autofokus eingestellt wird.


③
TL1313-TL1316: Impulse
In Ordnung
Objektivblock defekt.
Nicht gut
IC1301-3: 3 V
Nicht gut
Die 3 V Leitung überprüfen.
In Ordnung
IC1301-4, 11, 23: 5 V
Nicht gut
Die 5 V Leitung überprüfen.
In Ordnung
TL1325: 12 V
Nicht gut
• C1302 defekt.
• C1303 defekt.
• C1304 defekt.
In Ordnung
IC1301-12, 14: Impulse
Nicht gut
IC1104 defekt.
In Ordnung
IC1301-13, 15: Impulse
Nicht gut
IC1104 defekt.
In Ordnung
IC1301 defekt.


④
Die Anschlüsse des Flachkabels des Objektivs überprüfen.
Nicht gut
Die Anschlüsse des Flachkabels des Objektivs berichtigen.
In Ordnung
TL1317: 3 V
Nicht gut
Die 3 V Leitung überprüfen.
In Ordnung
TL1311: Impuls
Nicht gut
• R1316 defekt.
• Q1301 defekt.
• IC1104 defekt.
In Ordnung
Objektivblock defekt.

(5) OBJEKT IST SEHR UNSCHARF, WENN GEZOOMT

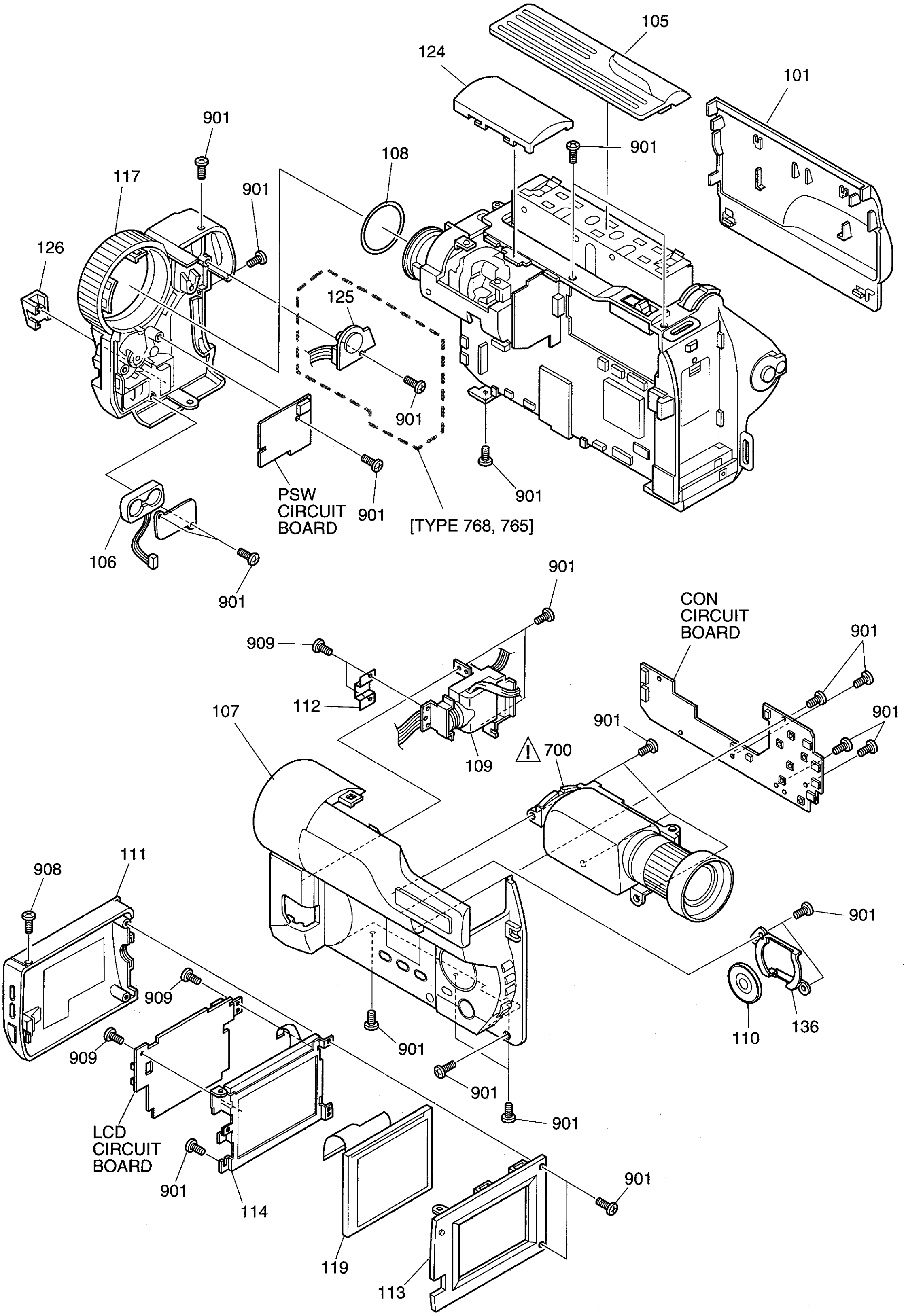

Ist manuelle Fokussierung möglich ?
Nein
①
Ja
Kann zwischen manuelle und automatischer Fokussierung umgeschaltet werden?
Nein
Die Fokussierschalter überprüfen.
Nicht gut
Fokussierschalter defekt.
In Ordnung
Ja
*
IC1104-92: Impuls
Nicht gut
• Fokussierschalter defekt.
• R1179 defekt.
• R1186 defekt.
• C1118 defekt.
In Ordnung
*
IC1104-93: Impuls
Nicht gut
• Fokussierschalter defekt.
• R1178 defekt.
• R1185 defekt.
• C1117 defekt.
In Ordnung
①
Arbeitet die manuelle Fokussierung normal ?
Nein
Siehe "(2) Fokussier-objektiv arbeitet nicht".
Ja
IC1104-49: 1,2 - 1,6 V
Nein
• R1303 defekt.
• C1305 defekt.
• D1301 defekt.
Ja
#
Die Einheit initialisieren und den Autofokus einstellen.
Arbeitet Autofokus normal ?
Nein
IC1104 defekt.
Ja
Ende

Hinweis: Die mit "* " markierten Punkte überprüfen, indem die FAR- und NEAR-Schalter für die manuelle Scharfeinstellung abwechselnd gedrückt werden.

Hinweis: Für die mit "# " markierten Punkte sind alle erforderlichen Einstellungen vorzunehmen, wenn die Einheit initialisiert wird, bevor der Autofokus eingestellt wird.

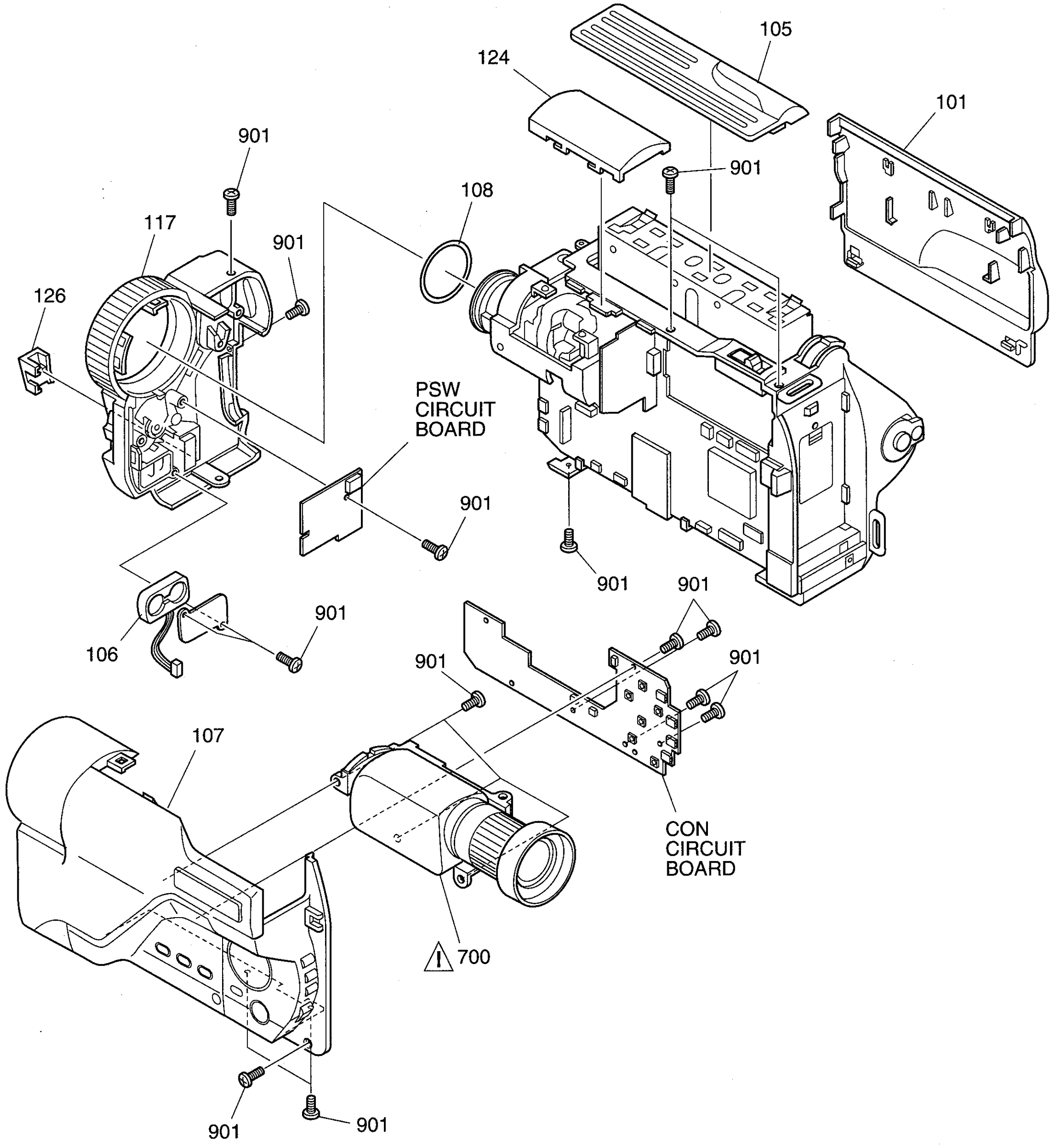
Notiz

CABINET (1-1) [TYPE 768, 765, 665, 568, 565, 563]


105
124
101
901
108
901
117
901
126
125
901
PSW CIRCUIT BOARD
901
[TYPE 768, 765]
901
106
901
901
CON CIRCUIT BOARD
909
901
112
107
109
901
901
700
908
111
901
909
909
901
110
136
901
901
LCD CIRCUIT BOARD
901
114
901
119
113
E
D
C
B
A
1
2
3
4

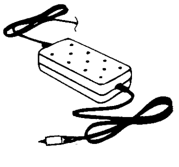
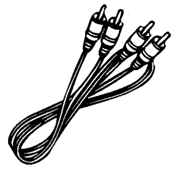
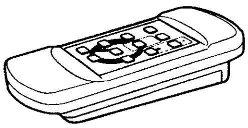
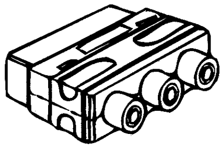
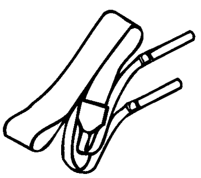
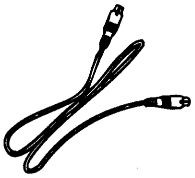
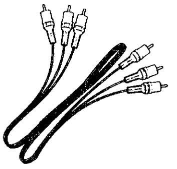
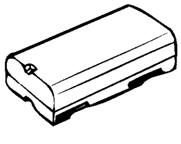
NOTE: The synthetic resin members that can be dismantled are shown by abbreviations using letters.

CABINET (1-2) [TYPE 660, 368, 360]


105
124
101
901
901
108
117
901
126
PSW CIRCUIT BOARD
901
901
901
901
106
901
901
107
CON CIRCUIT BOARD
700
901
901

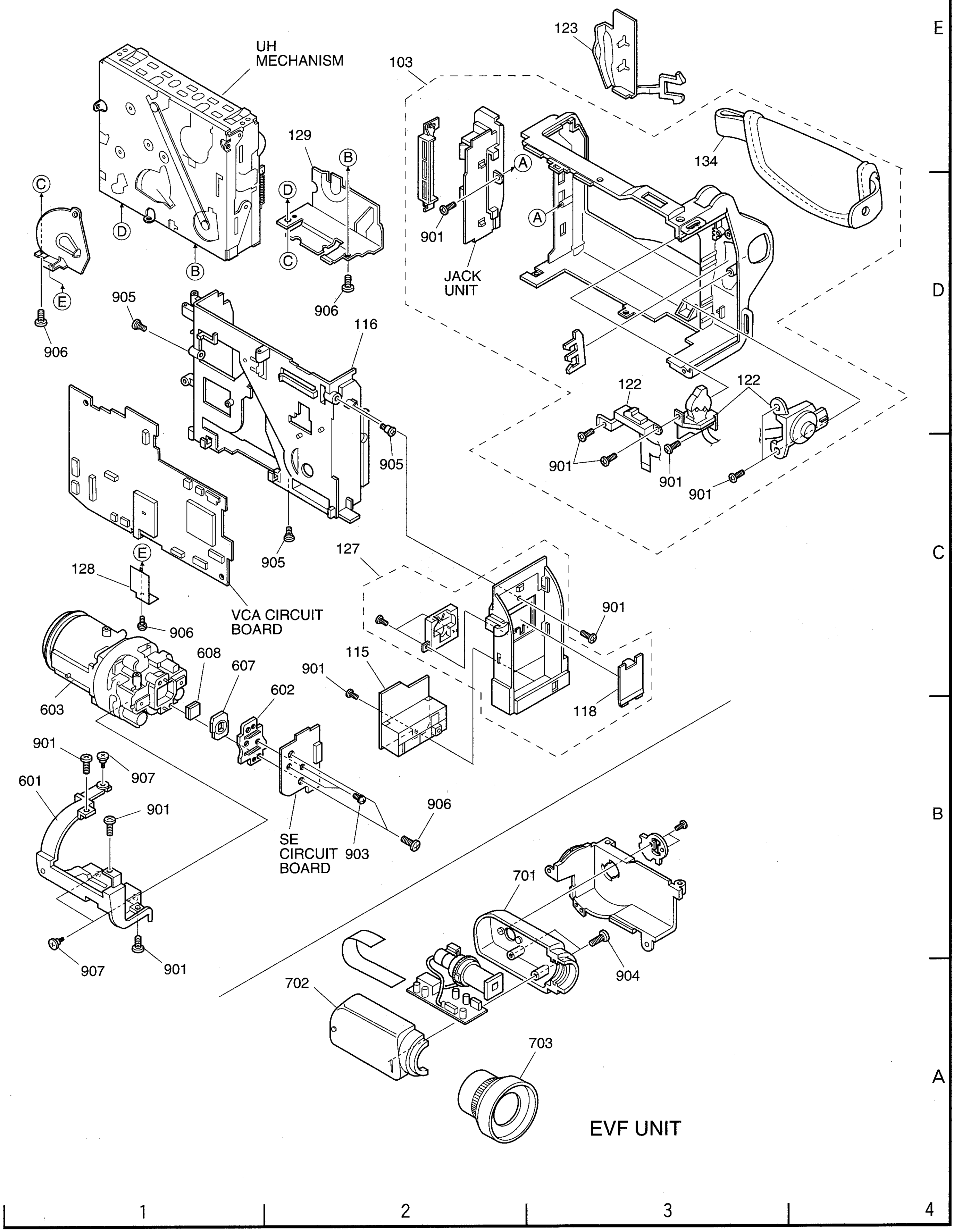
E
D
C
B
A

ACCESSOREIS

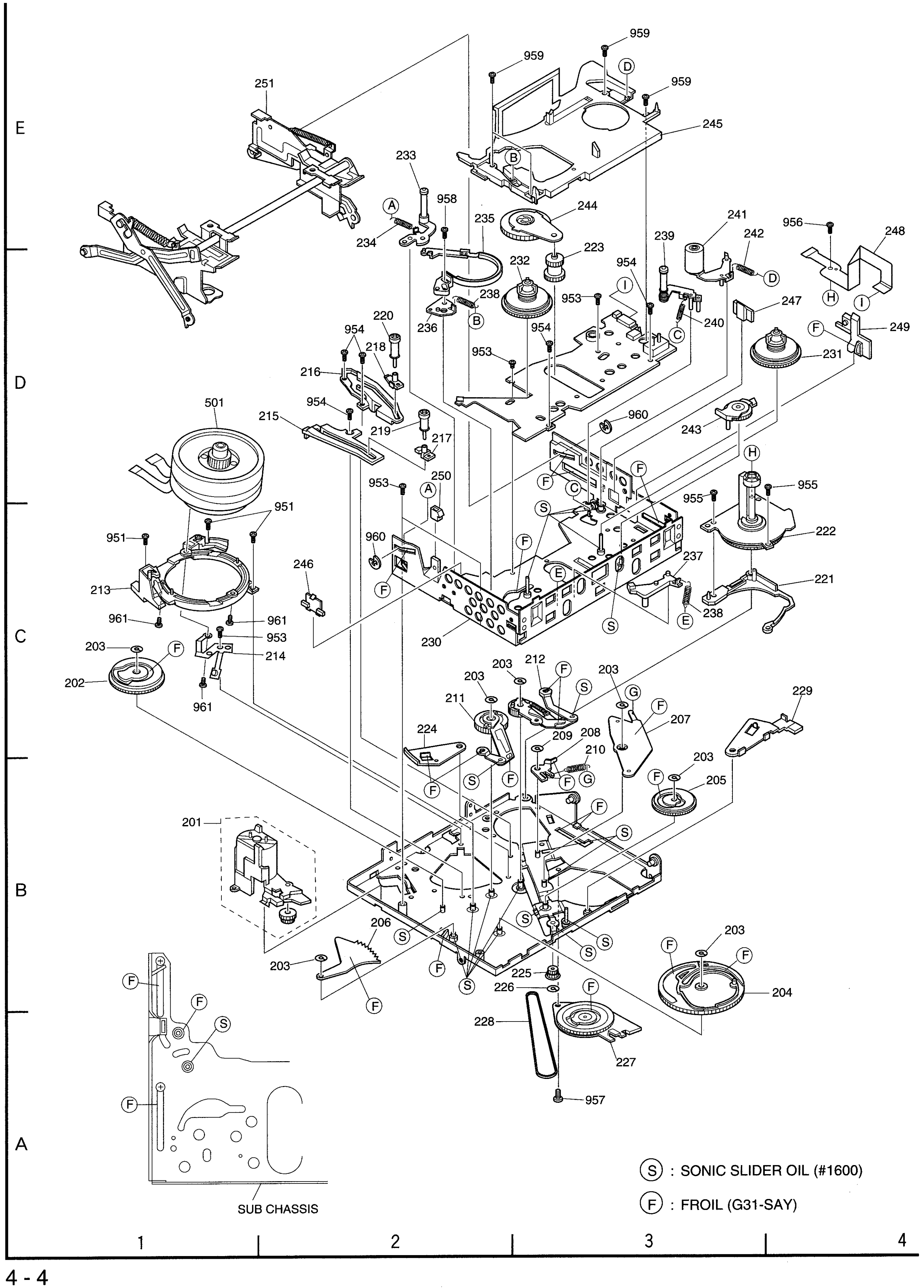
⚠ **802**  VM-ACE5E	**804** [Except for TYPE 765, 665] 	**805** [Except for TYPE 568, 368]  VM-RME611A	**806** [Except for (AU), (SW)] 
807 	**808** [TYPE 768, 765, 665, 660] 	**809** [TYPE 765, 665] 	⚠ **Battery**  VM-BPL13

1 2 3 4

CABINET (2)


UH MECHANISM
JACK UNIT
A
B
C
D
E
VCA CIRCUIT BOARD
SE CIRCUIT BOARD
EVF UNIT

UH MECHANISM


E
D
C
B
A
1
2
3
4
251
959
959
959
245
233
958
234
235
244
223
241
956
248
239
242
232
954
238
236
953
247
220
954
240
249
218
216
953
954
231
501
954
215
960
219
217
243
250
953
955
955
951
222
951
960
246
237
221
213
238
230
961
961
203
953
214
202
961
203
212
203
211
203
229
207
224
209
208
210
203
205
201
206
203
203
225
226
204
228
227
957
SUB CHASSIS
A
B
C
D
E
F
G
H
I
S

Ⓢ : SONIC SLIDER OIL (#1600)

Ⓕ : FROIL (G31-SAY)

CHAPTER 5 REPLACEMENT PARTS LIST

1. MECHANICAL PARTS LIST

SYMBOL NO	P-NO	DESCRIPTION
		MECHANISM SECTION
101	QD18891	LID,CASSETTE
103	QD19882	CASE,SIDE(R)[TYPE 768]
103	QD18621	CASE,SIDE(R)[TYPE 765,665]
103	QD19868	CASE,SIDE(R)[TYPE 660]
103	QD19884	CASE,SIDE(R)[TYPE 568]
103	QD18623	CASE,SIDE(R)[TYPE 565]
103	QD19883	CASE,SIDE(R)[TYPE 563]
103	QD19864	CASE,SIDE(R)[TYPE 368,360]
105	QD18911	COVER,TOP
106	GH10351	MICROPHONE [TYPE 765,665]
106	GH10352	MICROPHONE [EXCEPT FOR TYPE 765,665]
107	QD18651	CASE,SIDE(L)[TYPE 768,563]
107	QD18654	CASE,SIDE(L)[TYPE 765,665,565]
107	QD18657	CASE,SIDE(L)[TYPE 660]
107	QD18653	CASE,SIDE(L)[TYPE 568]
107	QD18659	CASE,SIDE(L)[TYPE 368]
107	QD18658	CASE,SIDE(L)[TYPE 360]
108	NX11244	RING(O)
109	NX19223	FLUCLUM ASSY[EXCEPT FOR TYPE 660,368,360]
110	GK10252	SPEAKER[EXCEPT FOR TYPE 660,368,360]
111	QD19232	CASE,LCD(U)[TYPE 768]
111	QD19231	CASE,LCD(U)[TYPE 765]
111	QD19233	CASE,LCD(U)[TYPE 665]
111	QD19236	CASE,LCD(U)[TYPE 568]
111	QD19234	CASE,LCD(U)[TYPE 565]
111	QD19235	CASE,LCD(U)[TYPE 563]
112	MN15232	SPACER [EXCEPT FOR TYPE 660,368,360]
113	QD18871	CASE,LCD(B)[EXCEPT FOR TYPE 660,368,360]
114	DT10351	LIGHT,BACK [EXCEPT FOR TYPE 660,368,360]
115	FH10652	TERMINAL UNIT
116	NT11721	FRAME,MECHA
117	QD18952	CASE,FRONT [TYPE 768]
117	QD18951	CASE,FRONT [TYPE 765]
117	QD18953	CASE,FRONT [TYPE 665]
117	QD18954	CASE,FRONT [EXCEPT FOR TYPE 768,765,665]
118	QX13981	COVER,BATTERY
119	DB10721	DISPLAY,LIQUID CRYSTAL [EXCEPT FOR TYPE 660,368,360]
122	FH10661	SWITCH(TW/PW)
123	QX14041	COVER,JACK
124	PH19911	COVER,LENS
125	DP10331	LAMP [TYPE 768,765]
126	QX14081	COVER
127	QD18701	COVER,REAR
128	MD12832	SHIELD PLATE
129	MD12622	SHIELD,MECHA
134	PV10241	STRAP,HAND
136	NA17111	BRACKET [EXCEPT FOR TYPE 660,368,360]
201	KX19871	HOLDER,LOADING MOTOR
202	KX21991	GEAR,CAM(A)
203	7787731	WASHER
204	KX22121	GEAR,CAM(B)
205	KX20271	GEAR,CAM(C)
206	KX19802	ARM,DRIVE
207	KX19812	LEVER,DRIVE
208	KX19821	PLATE,PRESSURE
209	7787735	WASHER
210	KL12652	SPRING
211	KX19705	LINK(L)
212	KX19657	LINK(R)
213	KX21591	BASE,CYLINDER ASSY
214	FU10311	BRUSH
215	KX20551	GUIDE RAIL(I)
216	KX20561	GUIDE RAIL(O)
217	KX20573	BASE,GUIDE ROLLER(I)
218	KX20582	BASE,GUIDE ROLLER(O)
219	KF13072	GUIDE(I)
220	KF13112	ROLLER
221	KX20293	BASE,CM
222	GP10665	MOTOR,CAPSTAN
223	KF12911	GEAR,CENTER
224	KX21601	PLATE
225	KF12901	GEAR,PULLY
226	7787733	WASHER
227	KX22012	SWITCH,MODE
228	KK10331	BELT,TIMING
229	KX21411	ARM,R
230	UE13524	CHASSIS,SUB
231	KH10353	REEL DISK,TAKE-UP
232	KH10363	REEL,DISK SUPPLY
233	KX20303	ARM,TENSION
234	KL12661	SPRING,TENSION
235	KX20202	BAND,TENSION
236	KX19841	BASE,B
237	KX19851	BRAKE
238	KL12671	SPRING
239	KX20495	ARM,OHD
240	KL12681	SPRING
241	KX20354	ARM,PR
242	KL12691	SPRING
243	KG10281	GEAR,BRAKE
244	KG10302	IDLER ASSY
245	KX20483	COVER,IDLER
246	KX20461	GUIDE,LIGHT(L)
247	KX20472	GUIDE,LIGHT(R)
248	EK11132	FLEXIBLE,MECHA
249	KX20242	HOLDER,EJECT
250	KX19791	LID OPENER
251	KX19609	CASSETTE HOLDER ASSY
501	HX10256	CYLINDER ASSY(CY-53LR) [TYPE 568,565,563,368,360]
501	HX10258	CYLINDER ASSY(CY-53L5-F) [TYPE 768,765,665,660]
601	NT11701	FRAME,LENS
602	UE14255	CCD IMAGE SENSOR ASSY [EXCEPT FOR TYPE 765,665,660]
602	UE14256	CCD IMAGE SENSOR ASSY[TYPE 765,665,660]
603	KQ10752	LENS ASSY
607	NX11252	RUBBER
608	DT10312	CRYSTAL [TYPE 765,665,660]
608	DT10314	CRYSTAL [EXCEPT FOR TYPE 765,665,660]
⚠700	UX10662	EVF AS
701	QD19201	CASE,EVF(R)
702	QD19211	CASE,EVF(L)
703	QD19771	PIECE,EYE
901	7775946	SCREW (2X6)
903	7775945	SCREW(2X5)
904	8619003	SCREW 1.7X5
905	7773891	SCREW
906	8650103	SCREW(2X3)
907	MJ10221	SCREW
908	7775964	SCREW(2X4) [EXCEPT FOR TYPE 660,368,360]
909	MK11701	SCREW(2X4S)[EXCEPT FOR TYPE 660,368,360]
951	8700268	SCREW(1.7X3)
953	7775911	SCREW(1.4X1.6)
954	7775913	SCREW (1.4X2.0)
955	8712970	SCREW(1.4X4)

2. ELECTRICAL PARTS LIST

SYMBOL NO	P-NO	DESCRIPTION
956	8712974	SCREW(1.4X6)
957	8712968	SCREW(1.4X3P)
958	MK11551	SCREW(1.7X3.0)
959	8714026	SCREW (1.4X3.5)
960	7778394	E RING
961	8711105	SCREW(2X5)
		ACCESSARIES
⚠802	TS15053	ADAPTOR,AC(VM-ACE5E)
⚠802	TS15054	ADAPTER,AC(VM-ACE5E(UK))
⚠802	TS15055	ADAPTOR,AC(VM-ACE5E(AU))
804	EW10943	CORD [EXCEPT FOR TYPE 765,665]
805	HL11231	REMOTE HAMD SET[EXCEPT FOR TYPE 568,368]
806	TS12981	AV PLUG ADAPTER[EXCEPT FOR (AU),(SW)]
807	TS14621	STRAP,SHOULDER
808	EW12152	CORD,S(Y/C)[TYPE 768,765,665,660]
809	EW12143	CORD,3PIN [TYPE 765,665]

SYMBOL NO	P-NO	DESCRIPTION
		CAMERA & VCR SECTION
C0001	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0004	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0005	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0101	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0102	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0104	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0105	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0106	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0107	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0108	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0109	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0110	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0111	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0112	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0113	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0114	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0115	0806186	ELECTROLYTIC 220UF 6.3V
C0116	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0117	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0118	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0119	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0120	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0121	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0122	0893117	CERAMIC CHIP 22PF+-5% 50V
C0123	0893133	CERAMIC CHIP 330PF+-5% 50V
C0124	0893112	CERAMIC CHIP 9.0PF+-0.5% 50V
C0125	0893122	CERAMIC CHIP 47PF+-5% 50V
C0126	0893114	CERAMIC CHIP 12PF+-5% 50V
C0128	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0129	0893132	CERAMIC CHIP 270PF+-5% 50V
C0130	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0132	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0133	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0134	0893111	CERAMIC CHIP 8PF+-0.5% 50V
C0135	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0136	0893126	CERAMIC CHIP 100PF+-5% 50V
C0137	0893123	CERAMIC CHIP 56PF+-5% 50V
C0139	0893121	CERAMIC CHIP 39PF+-5% 50V
C0140	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0150	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0151	0893122	CERAMIC CHIP 47PF+-5% 50V
C0152	0893119	CERAMIC CHIP 33PF+-5% 50V
C0153	0893121	CERAMIC CHIP 39PF+-5% 50V
C0154	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0155	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0203	AA01101R	CERAMIC CAPACITOR 10UF+-20% 10V
C0205	AD10488R	CHIP CAPACITOR 100UF+-20% 4V
C0208	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0209	0893109	CERAMIC CHIP 7.0PF 50V
C0210	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0212	0893109	CERAMIC CHIP 7.0PF 50V
C0215	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0217	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0218	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0219	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0220	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0222	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0223	0806167	ELECTROLYTIC 47UF 4V
C0224	0893193	CERAMIC CHIP 0.01UF+-10% 25V

SYMBOL NO	P-NO	DESCRIPTION
C0225	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0226	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0227	0893116	CERAMIC CHIP 18PF+-5% 50V
C0230	0893129	CERAMIC CHIP 180PF+-5% 50V
C0231	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0232	0893123	CERAMIC CHIP 56PF+-5% 50V
C0233	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0234	0893104	CERAMIC CHIP 2.0PF 50V [TYPE 768,765,665,660]
C0234	0893121	CERAMIC CHIP 39PF+-5% 50V [TYPE 568,565,563,368,360]
C0235	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0236	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0237	0893119	CERAMIC CHIP 33PF+-5% 50V
C0239	0893111	CERAMIC CHIP 8PF+-0.5% 50V
C0240	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0241	0893205	CERAMIC CHIP 560PF+-10% 50V
C0242	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0243	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0245	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0246	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0247	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0248	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0252	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0253	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0260	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0261	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0262	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0263	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0265	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0266	AA00951R	CERAMIC CAPACITOR 1.0UF+-10% 16V
C0267	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0268	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0269	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0270	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0271	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0272	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0273	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0274	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0275	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0277	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0278	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0279	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0280	0893117	CERAMIC CHIP 22PF+-5% 50V
C0281	0893117	CERAMIC CHIP 22PF+-5% 50V
C0282	0893117	CERAMIC CHIP 22PF+-5% 50V
C0285	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0290	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0301	0806133	ELECTROLYTIC 10UF 6.3V
C0302	0806178	ELECTROLYTIC 220UF 4V
C0303	0806178	ELECTROLYTIC 220UF 4V
C0304	0806133	ELECTROLYTIC 10UF 6.3V
C0305	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0306	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0307	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0308	0806168	ELECTROLYTIC 47UF 6.3V
C0309	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0311	0806027	ELECTROLYTIC 4.7UF 4V
C0312	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0315	AA00934R	CERAMIC CAPACITOR 2.2UF+-10% 10V
C0350	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0352	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0353	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0354	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0355	AA01101R	CERAMIC CAPACITOR 10UF+-20% 10V

SYMBOL NO	P-NO	DESCRIPTION
C0356	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C0357	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0358	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0360	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0361	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0362	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0363	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0364	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0365	AA00698R	CERAMIC CHIP 2.2UF+-10% 16V
C0401L	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0401R	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0405L	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0405R	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0406L	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0406R	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0407M	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0408L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0408R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0409M	0893099	CERAMIC CHIP 0.47UF+-10% 16V
C0410M	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0411L	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0411R	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0412L	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0412R	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0413M	AD10266R	ELECTROLYTIC 22UF 4V
C0414	0806162	ELECTROLYTIC 33UF 4V [TYPE 768,660,568,565,563,368,360]
C0414	0806167	ELECTROLYTIC 47UF 4V[TYPE 765,665]
C0414R	0806167	ELECTROLYTIC 47UF 4V
C0415M	0806027	ELECTROLYTIC 4.7UF 4V
C0416L	AA00934R	CERAMIC CAPACITOR 2.2UF+-10% 10V
C0416R	AA00934R	CERAMIC CAPACITOR 2.2UF+-10% 10V
C0417L	0806027	ELECTROLYTIC 4.7UF 4V
C0417R	0806027	ELECTROLYTIC 4.7UF 4V
C0418M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0419L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0419R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0420M	0806027	ELECTROLYTIC 4.7UF 4V
C0421L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0421R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0422M	AA01136R	CERAMIC CAPACITOR 0.47UF+-10% 6.3V
C0423L	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0423R	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0424M	0806133	ELECTROLYTIC 10UF 6V
C0425L	0806027	ELECTROLYTIC 4.7UF 4V
C0425R	0806027	ELECTROLYTIC 4.7UF 4V
C0426M	0806027	ELECTROLYTIC 4.7UF 4V
C0427S	AA00934R	CERAMIC CAPACITOR 2.2UF+-10% 10V
C0428M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0429M	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0430S	0806027	ELECTROLYTIC 4.7UF 4V
C0431M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0431S	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0432M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0433L	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0433R	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0435M	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0436S	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0437S	0806133	ELECTROLYTIC 10UF 6V
C0438M	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0439M	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0440M	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0441M	AA00951R	CERAMIC CAPACITOR 1.0UF+-10% 16V
C0442M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0443M	0806168	ELECTROLYTIC 47UF 6.3V

SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
C0444M	0806133	ELECTROLYTIC 10UF 6V	C0522	0893129	CERAMIC CHIP 180PF+-5% 50V
C0446M	AA00951R	CERAMIC CAPACITOR 1.0UF+-10% 16V	C0523	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0447M	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0524	0893133	CERAMIC CHIP 330PF+-5% 50V
C0448L	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0525	0893129	CERAMIC CHIP 180PF+-5% 50V
C0448R	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0527	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0449M	0806027	ELECTROLYTIC 4.7UF 4V	C0528	AA00412R	CERAMIC CHIP 10UF+-80-20% 16V
C0451M	0806156	ELECTROLYTIC 22UF 4V	C0529	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0452S	0806133	ELECTROLYTIC 10UF 6.3V	C0530	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0453S	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0534	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0454M	0893179	CERAMIC CHIP 0.1UF+-10% 16V	C0535	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0455M	0893099	CERAMIC CHIP 0.47UF+-10% 16V	C0538	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0457	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0540	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0458	0806168	ELECTROLYTIC 47UF 6.3V	C0541	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0459	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0542	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0460	0806133	ELECTROLYTIC 10UF 6V	C0543	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0461M	0806167	ELECTROLYTIC 47UF 4V	C0544	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0463	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V	C0545	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0464S	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V	C0546	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0465	0806174	ELECTROLYTIC 100UF 6.3V	C0547	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0466	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0550	AA00412R	CERAMIC CHIP 10UF+-80-20% 16V
C0471	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C0551	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0471R	0893188	CERAMIC CHIP 0.047UF+-10% 16V	C0552	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0472	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0559	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0472R	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0562	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0473L	0893182	CERAMIC CHIP 0.015UF+-10% 16V	C0577	0893058	CERAMIC CHIP 0.33UF+80-20% 16V
C0473R	0893182	CERAMIC CHIP 0.015UF+-10% 16V	C0578	0806174	ELECTROLYTIC 100UF 6.3V
C0474L	AA01111R	CERAMIC CHIP 1UF 6.3V	C0582	AA00951R	CERAMIC CAPACITOR 1.0UF+-10% 16V
C0474R	AA01111R	CERAMIC CHIP 1UF 6.3V	C0584	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0475L	AA01111R	CERAMIC CHIP 1UF 6.3V	C0585	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0475R	AA01111R	CERAMIC CHIP 1UF 6.3V	C0586	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0476L	0893191	CERAMIC CHIP 6800PF+-10% 25V	C0588	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0476R	0893191	CERAMIC CHIP 6800PF+-10% 25V	C0589	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0477L	AA01111R	CERAMIC CHIP 1UF 6.3V	C0590	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0477R	AA01111R	CERAMIC CHIP 1UF 6.3V	C0591	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0478L	0893216	CERAMIC CHIP 3900PF+-10% 50V	C0592	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0478R	0893216	CERAMIC CHIP 3900PF+-10% 50V	C0593	AA00412R	CERAMIC CHIP 10UF+-80-20% 16V
C0479S	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0594	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0480S	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V	C0595	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0481	AA00934R	CERAMIC CAPACITOR 2.2UF+-10% 10V	C0596	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0482L	AA01136R	CERAMIC CAPACITOR 0.47UF+-10% 6.3V	C0597	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0482R	AA01136R	CERAMIC CAPACITOR 0.47UF+-10% 6.3V	C0598	0893062	CERAMIC CHIP 1UF+80-20% 16V
C0483	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0631	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0483R	0893208	CERAMIC CHIP 1000PF+-10% 50V	C0632	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0484L	0893099	CERAMIC CHIP 0.47UF+-10% 16V	C0633	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0484R	0893099	CERAMIC CHIP 0.47UF+-10% 16V	C0635	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0489	AA01136R	CERAMIC CAPACITOR 0.47UF+-10% 6.3V	C0636	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0489R	AA01136R	CERAMIC CAPACITOR 0.47UF+-10% 6.3V	C0637	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0501	0893217	CERAMIC CHIP 4700PF+-10% 50V	C0638	0893219	CERAMIC CHIP 0.0068UF+-10% 50V
C0502	0893119	CERAMIC CHIP 33PF+-5% 50V	C0640	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0503	0893217	CERAMIC CHIP 4700PF+-10% 50V	C0641	AA01134R	CERAMIC CAPACITOR 0.33UF+-10% 6.3V
C0504	0893119	CERAMIC CHIP 33PF+-5% 50V	C0642	0806133	ELECTROLYTIC 10UF 6.3V
C0505	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0643	0806133	ELECTROLYTIC 10UF 6.3V
C0507	0893193	CERAMIC CHIP 0.01UF+-10% 25V	C0644	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0508	0893217	CERAMIC CHIP 4700PF+-10% 50V	C0645	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0509	0893126	CERAMIC CHIP 100PF+-5% 50V	C0647	AA01132R	CERAMIC CAPACITOR 0.22UF+-10% 6.3V
C0510	0893179	CERAMIC CHIP 0.1UF+-10% 16V	C0648	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0511	0893183	CHIP CERAMIC 0.018PF+-10% 16V	C0649	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0513	0893227	CERAMIC CHIP 0.22UF+80-20% 16V	C0650	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0514	0893217	CERAMIC CHIP 4700PF+-10% 50V	C0651	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0516	0893217	CERAMIC CHIP 4700PF+-10% 50V	C0652	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0517	0893217	CERAMIC CHIP 4700PF+-10% 50V	C0655	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0518	0893129	CERAMIC CHIP 180PF+-5% 50V	C0656	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0519	0893133	CERAMIC CHIP 330PF+-5% 50V	C0657	AA01136R	CERAMIC CAPACITOR 0.47UF+-10% 6.3V
C0520	0893129	CERAMIC CHIP 180PF+-5% 50V	C0658	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0521	0893133	CERAMIC CHIP 330PF+-5% 50V	C0659	0893179	CERAMIC CHIP 0.1UF+-10% 16V

SYMBOL NO	P-NO	DESCRIPTION
C0660	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0671	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C0672	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C0673	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0691	0893198	CERAMIC CHIP 0.027UF+-10% 25V
C0692	0893245	CERAMIC CAPACITOR 0.015UF+-10% 50V
C0693	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0694	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0695	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0696	0893219	CERAMIC CHIP 0.0068UF+-10% 50V
C0701	0806168	ELECTROLYTIC 47UF 6.3V
C0703	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0731	0806174	ELECTROLYTIC 100UF 6.3V
C0736	0806174	ELECTROLYTIC 100UF 6.3V
C0737	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0757	AA00751R	CERAMIC CHIP 10UF+-10% 6.3V
C0904	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0905	0806173	ELECTROLYTIC 100UF 4V
C0906	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0907	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0908	0806167	ELECTROLYTIC 47UF 4V
C0909	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0910	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0911	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0912	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0913	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0914	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0915	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0916	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0917	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0918	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0919	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0920	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0921	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0922	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0923	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0924	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0925	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0926	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0927	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0928	0893117	CERAMIC CHIP 22PF+-5% 50V
C0929	0893117	CERAMIC CHIP 22PF+-5% 50V
C0930	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C0942	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C1001	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1003	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1004	0893211	CERAMIC CHIP 1500PF+-10% 50V
C1005	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1006	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1007	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1008	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C1009	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1011	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1012	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1111	0893208	CERAMIC CHIP 1000PF+-10% 50V
C1112	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C1113	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1114	0893208	CERAMIC CHIP 1000PF+-10% 50V
C1115	0893208	CERAMIC CHIP 1000PF+-10% 50V
C1116	0893208	CERAMIC CHIP 1000PF+-10% 50V
C1117	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C1118	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C1155	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1159	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C1161	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C1162	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C1163	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1164	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C1165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1167	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1168	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1169	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C1170	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C1201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1204	0893132	CERAMIC CHIP 270PF+-5% 50V
C1205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1206	0893178	CERAMIC CAPACITOR 0.082UF+-10% 16V
C1207	0893069	CERAMIC CHIP 0.22UF+80-20% 25V
C1208	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1209	0893133	CERAMIC CHIP 330PF+-5% 50V
C1210	0893133	CERAMIC CHIP 330PF+-5% 50V
C1211	0893133	CERAMIC CHIP 330PF+-5% 50V
C1212	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C1213	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1301	0806186	ELECTROLYTIC 220UF 6.3V
C1302	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1305	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1306	AA01101R	CERAMIC CAPACITOR 1UF+-20% 10V
C1311	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C1403	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C1404	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C1405	0806156	ELECTROLYTIC 22UF 4V
C1406	0806156	ELECTROLYTIC 22UF 4V
C1407	0893194	CERAMIC CHIP 0.012UF+-10% 25V
C1408	0893194	CERAMIC CHIP 0.012UF+-10% 25V
C1409	0893194	CERAMIC CHIP 0.012UF+-10% 25V
C1410	0893194	CERAMIC CHIP 0.012UF+-10% 25V
C1411	AA00373R	CERAMIC CAPACITOR 4.7UF+-10% 10V
C1412	AA00373R	CERAMIC CAPACITOR 4.7UF+-10% 10V
C1413	0893214	CERAMIC CHIP 2700PF+-10% 50V
C1414	0893214	CERAMIC CHIP 2700PF+-10% 50V
C1415	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C1417	0806156	ELECTROLYTIC 22UF 4V
C5314	0893099	CERAMIC CHIP 0.47UF+-10% 16V
C5319	AA00951R	CERAMIC CAPACITOR 1.0UF+-10% 16V
C5320	AD10274R	ELECTROLYTIC 6.8UF 20V
C5501	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C5502	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5503	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C5504	0893184	CERAMIC CHIP 0.022UF+-10% 16V
C5505	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5507	AA00373R	CERAMIC CAPACITOR 4.7UF+-10% 10V
C5509	0893116	CERAMIC CHIP 18PF+-5% 50V
C5510	0893118	CERAMIC CHIP 27PF+-5% 50V
C5511	AD10276R	ELECTROLYTIC 33UF 10V
C5512	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C5513	AF10115R	CHIP CAPASITOR 0.018UF+-5% 50V
C5524	AA10647R	CERAMIC CAPACITOR 12PF+-5% 2KV
R0001	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0002	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0003	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0006	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0007	0103978	CHIP RESISTOR 3.3OHM+-5% 1/8W
R0008	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0009	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0010	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0011	AQ01007R	CHIP RESISTOR 1KOHM+-0.5% 1/16W
R0012	AQ01021R	CHIP RESISTOR 10KOHM+-0.5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0013	AQ01024R	CHIP RESISTOR 18KOHM+-0.5% 1/16W
R0014	AQ01007R	CHIP RESISTOR 1KOHM+-0.5% 1/16W
R0017	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0018	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0020	AQ10405R	CHIP RESISTOR 0.10OHM 1/4W
R0024	AQ01031R	CHIP RESISTOR 56KOHM+-0.5% 1/16W
R0025	0105217	CHIP RESISTOR 150KOHM+-0.5% 1/16W
R0101	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0102	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0103	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0104	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0105	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0106	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0107	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0108	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0109	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0110	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0111	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0112	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0113	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0114	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
R0115	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0116	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0118	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0119	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0120	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0121	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0122	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0123	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0124	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0125	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0126	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0127	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0128	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0129	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0130	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0131	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0132	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0133	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0140	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0141	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0144	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0145	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0146	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0147	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0148	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0149	0790027	CHIP RESISTOR 180OHM+-5% 1/16W
R0150	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0151	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0152	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0153	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0154	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0156	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0157	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0158	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0159	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0160	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0161	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0163	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0164	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0165	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0166	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0170	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0171	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0172	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0173	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0174	0790008	CHIP RESISTOR 6.8 OHM+-5% 1/16W
R0175	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0176	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W [TYPE 660,568,565,563,368,360]
R0176	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W [TYPE 768,765,665]
R0177	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0178	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0179	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0202	BM00141R	FILTER
R0204	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0206	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0208	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0209	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0210	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0213	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0214	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0215	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0216	0790026	CHIP RESISTOR 150 OHM+-5% 1/16W
R0217	0790026	CHIP RESISTOR 150 OHM+-5% 1/16W
R0219	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0220	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0221	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0222	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0225	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0226	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0227	AQ00221R	CHIP RESISTOR 10KOHM+-1% 1/16W
R0228	AQ00227R	CHIP RESISTOR 18KOHM+-1% 1/16W
R0229	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0230	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R0231	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0232	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0233	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0234	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0235	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0236	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0237	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0238	AQ00227R	CHIP RESISTOR 18KOHM+-1% 1/16W
R0239	AQ00221R	CHIP RESISTOR 10KOHM+-1% 1/16W
R0248	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0249	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0250	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0254	BM00135R	COIL
R0255	BM00141R	FILTER
R0256	BM00135R	COIL
R0258	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0259	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0260	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0266	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0267	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0268	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0274	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0275	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0276	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0277	0790019	CHIP RESISTOR 47 OHM+-5% 1/16W
R0278	BM00137R	FILTER
R0279	BM00137R	FILTER
R0283	AQ00231R	CHIP RESISTOR 24KOHM+-1% 1/16W
R0285	0790012	CHIP RESISTOR 12 OHM+-5% 1/16
R0286	0790012	CHIP RESISTOR 12 OHM+-5% 1/16
R0288	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R0289	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0290	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0291	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
		[TYPE 568,565,563,368,360]
R0291	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W [TYPE 768,765,665]
R0301	0790022	CHIP RESISTOR 68 OHM+-5% 1/16W
R0302	0790022	CHIP RESISTOR 68 OHM+-5% 1/16W
R0304	0790022	CHIP RESISTOR 68 OHM+-5% 1/16W
R0306	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0311	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W [TYPE 768,765,665]
R0311	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W [TYPE 565,563]
R0328	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0351	AQ00181R	CHIP RESISTOR 330 OHM+-1% 1/16W
R0353	AQ00181R	CHIP RESISTOR 330 OHM+-1% 1/16W
R0355	AQ00181R	CHIP RESISTOR 330 OHM+-1% 1/16W
R0356	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0357	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0358	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0359	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0360	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0361	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0362	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0366	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0401M	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0404M	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0405L	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0405R	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0406M	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0407M	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0409	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0414M	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0415M	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0416M	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0419M	0790069	CHIP RESISTOR 270KOHM+-5% 1/16W
R0426	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0431S	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0432S	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0434M	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0435S	0104121	CHIP RESISTOR 27KOHM+-1% 1/10W
R0436M	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0437M	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0440M	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0442	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0443M	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0444M	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0445M	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0446S	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0447M	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0447S	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0448S	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0449	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0450	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0451M	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0452M	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0453M	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0454M	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0456	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0457L	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0457R	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0458	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0458	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0458R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0461	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0462	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0463S	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0464S	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0468S	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0470M	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0471	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0471R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0472	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0472R	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0473	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0473	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0473R	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0474	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W [TYPE 765,665]
R0474	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W [TYPE 768,660,568,565,563,368,360]
R0474R	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0475L	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0475R	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0476L	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0476R	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0477L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0477R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0478L	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0478R	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0479L	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0479R	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0480L	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0480R	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0481L	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0481R	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0482L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0482R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0483L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0483R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0484S	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0485S	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0486	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0493L	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0493R	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0494	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0494R	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0495	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W [TYPE 768,565,563]
R0495	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W [TYPE 765,665]
R0495R	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0499	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0499R	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0501	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0502	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0504	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0505	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0506	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0507	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0508	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0510	AQ00238R	CHIP RESISTOR 47KOHM+-1% 1/16W
R0511	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0512	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0513	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0514	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0516	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0517	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0518	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0519	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0522	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0525	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0529	AQ00211R	CHIP RESISTOR 4.3KOHM+-1% 1/16W
R0531	AQ01004R	CHIP RESISTOR 560 OHM+-0.5% 1/16W
R0532	AQ01016R	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0533	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0534	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0539	AQ01021R	CHIP RESISTOR 10KOHM+-0.5% 1/16W
R0540	AQ01005R	CHIP RESISTOR 680 OHM+-0.5% 1/16W
R0541	AQ01016R	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0545	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0546	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0549	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
R0550	AQ010274R	CHIP RESISTOR 46.4KOHM+-0.5% 1/16W
R0551	AQ01005R	CHIP RESISTOR 680 OHM+-0.5% 1/16W
R0552	AQ01016R	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0553	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0554	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0556	AQ01005R	CHIP RESISTOR 680 OHM+-0.5% 1/16W
R0557	AQ01004R	CHIP RESISTOR 560 OHM+-0.5% 1/16W
R0558	AQ01016R	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0561	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0562	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0566	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0567	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0568	AQ01016R	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0569	AQ00213R	CHIP RESISTOR 5.1KOHM+-1% 1/16W
R0583	0790023	CHIP RESISTOR 82 OHM+-5% 1/16W
R0585	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0597	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0598	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0599	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0640	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0641	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0642	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0643	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W
R0644	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W
R0662	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0664	0790002	CHIP RESISTOR 2.2 OHM+-5% 1/16W
R0665	0790002	CHIP RESISTOR 2.2 OHM+-5% 1/16W
R0666	0790002	CHIP RESISTOR 2.2 OHM+-5% 1/16W
R0667	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0668	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0671	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0672	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0681	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0682	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0691	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0692	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0693	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0694	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0695	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0696	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0701	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0702	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0734	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0761	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0762	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0763	0790026	CHIP RESISTOR 150 OHM+-5% 1/16W
R0764	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0765	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0766	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0767	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0771	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0772	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0773	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0774	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0775	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0776	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0777	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0778	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0901	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0902	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0903	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0904	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0905	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0906	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0907	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0908	0105217	CHIP RESISTOR 150KOHM+-0.5% 1/16W
R0909	AQ01031R	CHIP RESISTOR 56KOHM+-0.5% 1/16W
R0912	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0913	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0914	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0915	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0916	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0917	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0918	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0919	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0920	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0921	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0922	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0923	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0924	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0925	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0926	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0928	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0929	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0930	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0931	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0932	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0933	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0934	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0935	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0936	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0937	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0941	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0942	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0943	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0944	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0945	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0946	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0948	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0949	AQ00221R	CHIP RESISTOR 10KOHM+-1% 1/16W
R0950	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0952	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0953	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0954	AQ00245R	CHIP RESISTOR 82KOHM+-1% 1/16W
R0955	AQ00227R	CHIP RESISTOR 18KOHM+-1% 1/16W
R0956	AQ00234R	CHIP RESISTOR 33KOHM+-1% 1/16W
R0957	AQ00247R	CHIP RESISTOR 100KOHM+-1% 1/16W
R0958	AQ00236R	CHIP RESISTOR 39KOHM+-1% 1/16W
R0959	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0960	AQ00221R	CHIP RESISTOR 10KOHM+-1% 1/16W
R0961	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0965	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0966	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R0967	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0969	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0970	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0971	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0974	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0976	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0977	0790017	CHIP RESISTOR 33 OHM+-5% 1/16W
R0978	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0979	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0980	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0981	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0982	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0983	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0984	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0985	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0992	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1001	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1003	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1006	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1009	0103823	CHIP RESISTOR 22 OHM+-5% 0.1W
R1123	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1124	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1125	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1126	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1127	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1136	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1153	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1154	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1155	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1156	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1157	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1158	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1161	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1164	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1165	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1166	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1167	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1170	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1171	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1172	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1173	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1174	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1175	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1178	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1179	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1185	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1186	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1188	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1189	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1190	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1192	BM00141R	FILTER
R1193	BM00141R	FILTER
R1201	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1202	0790069	CHIP RESISTOR 270KOHM+-5% 1/16W
R1203	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1204	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1205	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1206	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1207	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1208	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R1209	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1210	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1211	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R1212	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R1213	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1214	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1215	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1216	AQ000231R	CHIP RESISTOR 24KOHM+-1% 1/16W
R1218	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1220	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1221	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1223	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1225	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1226	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1227	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1303	AQ000214R	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R1312	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1313	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1316	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W
R1317	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W
R1403	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R1404	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R1405	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1406	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1407	0790072	CHIP RESISTOR 390KOHM+-5% 1/16W
R1408	0790072	CHIP RESISTOR 390KOHM+-5% 1/16W
R1409	AQ000236R	CHIP RESISTOR 39KOHM+-1% 1/16W
R1410	AQ000236R	CHIP RESISTOR 39KOHM+-1% 1/16W
R1411	AQ000269R	CHIP RESISTOR 680KOHM+-1% 0.63W
R1412	AQ000269R	CHIP RESISTOR 680KOHM+-1% 0.63W
R1413	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1414	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1416	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1424	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1425	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5307	AQ000198R	CHIP RESISTOR 1.5KOHM+-1% 1/16W
R5308	AQ000212R	CHIP RESISTOR 4.7KOHM+-1% 1/16W
R5330	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5332	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5333	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5334	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R5339	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R5340	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R5502	AQ000249R	CHIP RESISTOR 120KOHM+-1% 1/16W
R5503	AQ000232R	CHIP RESISTOR 27KOHM+-1% 1/16W
R5504	AQ000221R	CHIP RESISTOR 10KOHM+-1% 1/16W
R5505	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5506	AQ000214R	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R5508	AQ000216R	CHIP RESISTOR 6.8KOHM+-1% 1/16W
R5509	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R5510	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5511	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R5522	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5523	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R5524	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5525	0104274	CHIP RESISTOR 1.5KOHM+-1% 1/10W
D0001	CC11321R	DIODE MA726
D0002	CC10291R	DIODE 1SS353SP
D0003	5337422	DIODE DA221
D0350	5337422	DIODE DA221
D0552	CC10291R	DIODE 1SS353SP
D0553	CC10291R	DIODE 1SS353SP
D0554	CC10291R	DIODE 1SS353SP
D0555	CC10291R	DIODE 1SS353SP
D0556	CC10291R	DIODE 1SS353SP
D0557	CC10291R	DIODE 1SS353SP
D0901	CC10291R	DIODE 1SS353SP
D0902	CC10291R	DIODE 1SS353SP
D0905	CC11321R	DIODE MA726
D1002	CC10291R	DIODE 1SS353SP
D1101	CC10291R	DIODE 1SS353SP
D1301	5337422	DIODE DA221
D1302	CC10291R	DIODE 1SS353SP
D5301	CC10161R	DIODE MA781WK

SYMBOL NO	P-NO	DESCRIPTION
IC0001	CK22711R	IC MM6564XFBE
IC0101	1366631	IC HA118189MER
IC0201	CK24801U	IC MB87L1551PMT2
IC0202	CK21332U	IC HD49323AF
IC0203	CK12061R	IC UPD16510GR
IC0301	CK22491R	IC UPC5020GS129
IC0350	CK22501R	IC UPS5020GR-125-8JG
IC0401	CK12241	IC HA118193F [TYPE 765,665]
IC0401	CK20272R	IC LA7458W[TYPE 768,568,565,563,368,360]
IC0461S	CK16471R	IC TDA7052AT
IC0471S	CK22341R	IC NJM2112V-TE1
IC0551	CK23901U	IC BA9736KV
IC0553	CK20191R	IC PQ20WZ51
IC0631	CK18331R	IC LB1950V-TRM
IC0651	CK22031R	IC LB1991V-TRM
IC0671	1366651	IC BA6417F
IC0701	CE10171R	MODULE GP1U101X
IC0901	CK24961U	IC CXP87360-132R
IC0902	CK21712R	IC NJU7285BV
IC0904	CK16994R	IC UPD6461GS-941-E1[TYPE 768,568,368]
IC0904	CK16995R	IC UPD6461GS-947-E1 [TYPE 765,665,660,565,563,360]
IC1104	CK24851U	IC HD6432237M08TE
IC1105	CK24721R	IC AT25160N
IC1111	CK18021R	IC MB88347PFV
IC1201	CK20621R	IC UPC5023GS-147-GJG
IC1301	CK17992R	IC UPD16833AG3
IC1401	FU10323	SENSOR,GYRO
IC1402	FU10324	SENSOR,GYRO
IC1403	CK24841R	IC NJU7018M
IC5501	CK18431R	IC TL5001CD
Q0001	CA11901	TRANSISTOR UPA1770G
Q0002	CA10271R	TRANSISTOR 2SB1424
Q0003	1323279	TRANSISTOR DTC114YE
Q0004	CA11941R	TRANSISTOR 2SK3019
Q0101	1323286	TRANSISTOR UMH9N
Q0102	1323294	TRANSISTOR 2SA1774RS
Q0103	1323294	TRANSISTOR 2SA1774RS
Q0104	CA10162R	TRANSISTOR 2SA1577Q
Q0105	1323279	TRANSISTOR DTC114YE
Q0106	CA10162R	TRANSISTOR 2SA1577Q
Q0107	1323279	TRANSISTOR DTC114YE
Q0109	1323294	TRANSISTOR 2SA1774RS
Q0110	1323294	TRANSISTOR 2SA1774RS
Q0111	1323291	TRANSISTOR 2SC4617
Q0112	1323291	TRANSISTOR 2SC4617
Q0113	1323252	TRANSISTOR XP4501
Q0114	1323286	TRANSISTOR UMH9N
Q0115	1323252	TRANSISTOR XP4501
Q0117	1323291	TRANSISTOR 2SC4617
Q0118	1323279	TRANSISTOR DTC114YE
Q0119	1323291	TRANSISTOR 2SC4617
Q0120	1323294	TRANSISTOR 2SA1774RS
Q0130	1323279	TRANSISTOR DTC114YE
Q0131	1323294	TRANSISTOR 2SA1774RS
Q0132	CA11273R	TRANSISTOR 2SA1037K-S
Q0201	1323294	TRANSISTOR 2SA1774RS
Q0202	1323294	TRANSISTOR 2SA1774RS
Q0204	1323252	TRANSISTOR XP4501
Q0206	1323279	TRANSISTOR DTC114YE
Q0209	1323291	TRANSISTOR 2SC4617
Q0210	1323291	TRANSISTOR 2SC4617
Q0303	1323291	TRANSISTOR 2SC4617
Q0304	1323279	TRANSISTOR DTC114YE
Q0350	1323294	TRANSISTOR 2SA1774RS
Q0351	1323294	TRANSISTOR 2SA1774RS
Q0352	1323294	TRANSISTOR 2SA1774RS
Q0401	1323279	TRANSISTOR DTC114YE
Q0401R	1323279	TRANSISTOR DTC114YE
Q0402M	1323278	TRANSISTOR DTA114YE
Q0403M	1323279	TRANSISTOR DTC114YE
Q0404M	1323291	TRANSISTOR 2SC4617
Q0405	1323291	TRANSISTOR 2SC4617
Q0406	1323291	TRANSISTOR 2SC4617
Q0406R	1323291	TRANSISTOR 2SC4617
Q0407M	1323294	TRANSISTOR 2SA1774RS
Q0461	CA10162R	TRANSISTOR 2SA1577Q
Q0462	1323279	TRANSISTOR DTC114YE
Q0463S	1323279	TRANSISTOR DTC114YE
Q0471	1323291	TRANSISTOR 2SC4617
Q0471R	1323291	TRANSISTOR 2SC4617
Q0474	1323291	TRANSISTOR 2SC4617
Q0475S	1323271	TRANSISTOR DTC144EE
Q0551	1308011	TRANSISTOR MPL1
Q0552	CA10271R	TRANSISTOR 2SB1424R
Q0553	1308011	TRANSISTOR MPL1
Q0555	CA10271R	TRANSISTOR 2SB1424R
Q0556	1323279	TRANSISTOR DTC114YE
Q0557	CA10271R	TRANSISTOR 2SB1424R
Q0559	1308011	TRANSISTOR MPL1
Q0561	1308011	TRANSISTOR MPL1
Q0562	1308011	TRANSISTOR MPL1
Q0563	1323279	TRANSISTOR DTC114YE
Q0570	CA10271R	TRANSISTOR 2SB1424R
Q0571	1323291	TRANSISTOR 2SC4617
Q0572	1323287	TRANSISTOR UMD9N
Q0573	1323287	TRANSISTOR UMD9N
Q0574	1323287	TRANSISTOR UMD9N
Q0575	1323291	TRANSISTOR 2SC4617
Q0576	1323291	TRANSISTOR 2SC4617
Q0577	1323291	TRANSISTOR 2SC4617
Q0578	1323287	TRANSISTOR UMD9N
Q0579	1323279	TRANSISTOR DTC114YE
Q0580	1323252	TRANSISTOR XP4501
Q0701	1323279	TRANSISTOR DTC114YE
Q0732	1323279	TRANSISTOR DTC114YE
Q0901	1323294	TRANSISTOR 2SA1774RS
Q0902	1323291	TRANSISTOR 2SC4617
Q0904	1323294	TRANSISTOR 2SA1774RS
Q0905	5328975	TRANSISTOR 2SC2412K
Q0909	1323279	TRANSISTOR DTC114YE
Q0910	1323278	TRANSISTOR DTA114YE
Q1001	5328221	TRANSISTOR 2SC2620-QC
Q1201	1323291	TRANSISTOR 2SC4617
Q1202	1323291	TRANSISTOR 2SC4617
Q1203	1323142	TRANSISTOR 2SC2411K
Q1301	1323286	TRANSISTOR UMH9N
Q1401	1323279	TRANSISTOR DTC114YE
Q1402	1323252	TRANSISTOR XP4501
Q5303	1323279	TRANSISTOR DTC114YE
Q5304	1323279	TRANSISTOR DTC114YE
Q5305	1323293	TRANSISTOR 2SC4617 (R/S)
Q5306	1323279	TRANSISTOR DTC114YE
Q5307	1323279	TRANSISTOR DTC114YE
Q5501	1323272	TRANSISTOR DTA144EE
Q5502	1323279	TRANSISTOR DTC114YE
Q5505	1323293	TRANSISTOR 2SC4617 (R/S)
Q5506	1323293	TRANSISTOR 2SC4617 (R/S)
Q5510	1323293	TRANSISTOR 2SC4617 (R/S)
Q5511	1308011	TRANSISTOR MPL1

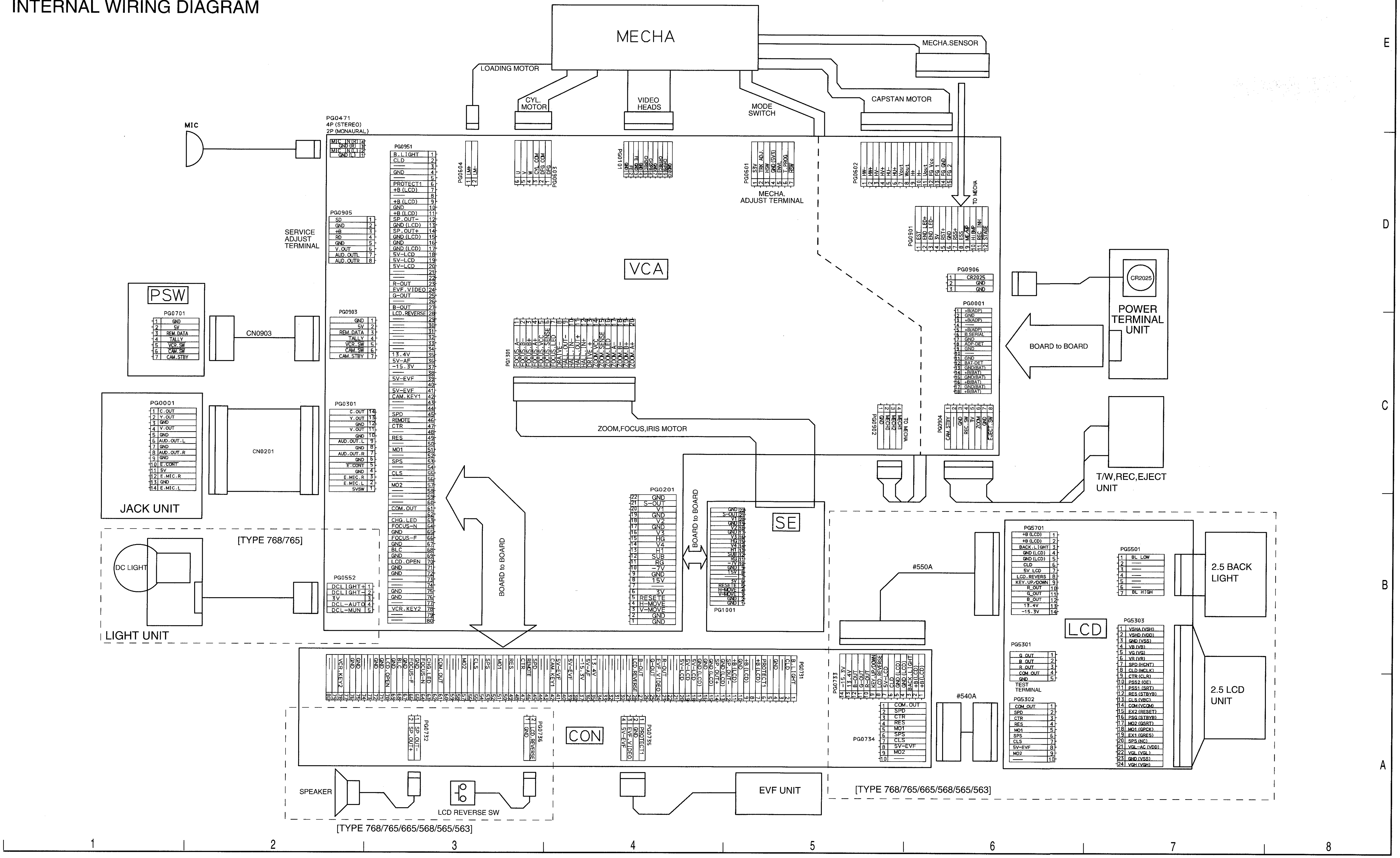
SYMBOL NO	P-NO	DESCRIPTION
Q5512	1323012	TRANSISTOR 2SC3647
Q5513	1323012	TRANSISTOR 2SC3647
T0551	BC10331R	TRANS
T5501	BC10381R	TRANSFORMER
L0101	BA10334R	COIL 10UH
L0102	BA10142R	COIL
L0103	BA10315R	COIL 150UH
L0104	BA10147R	COIL 22UH
L0105	BA10143R	COIL 10UH
L0106	BA10145R	COIL
L0107	BA10154R	COIL 82UH
L0108	0773096	COIL,CHOKE 220UH
L0110	BA10148R	COIL 27UH
L0111	BA10582R	COIL 47UH
L0201	BA10577R	COIL 10UH
L0202	BA10575R	COIL
L0203	BA10575R	COIL
L0209	BA10577R	COIL 10UH
L0210	BA10142R	COIL
L0211	0773117	CHOKE COIL 8.2UH+-5%
L0214	0773131	CHOKE COIL 82UH+-5%
L0301	BA10582R	COIL 47UH
L0350	BA10577R	COIL 10UH
L0401	BA10582R	COIL 47UH
L0402M	BA10582R	COIL 47UH
L0461	BA10334R	COIL 10UH
L0551	BA10691R	COIL
L0552	BA10693R	COIL
L0554	BA10695R	COIL
L0558	BA10577R	COIL 10UH
L0559	BA10582R	COIL 47UH
L0560	BA10582R	COIL 47UH
L0561	BA10695R	COIL
L0563	BA10691R	COIL
L0564	BA10695R	COIL
L0565	BA10695R	COIL
L0566	BA10582R	COIL 47UH
L0567	BA10582R	COIL 47UH
L0568	BA10582R	COIL 47UH
L0569	BA10582R	COIL 47UH
L0701	BA10579R	COIL 22UH
L0731	BA10577R	COIL 10UH
L0732	BA10579R	COIL 22UH
L0901	BA10577R	COIL 10UH
L0902	BA10577R	COIL 10UH
L0903	BA10582R	COIL 47UH
L1103	BA10577R	COIL 10UH
L5301	BA10577R	COIL 10UH
L5302	BA10584R	COIL 100UH
L5303	BA10584R	COIL 100UH
L5304	BA10577R	COIL 10UH
L5501	BA10333R	COIL 4.7UH
L5502	BA10693R	COIL
L5503	BA10698R	COIL
LED0701	CC10772R	DIODE SML-010LT
LED0751	CC11251R	DIODE SML-010MT
X0201	BL11092R	CRYSTAL 28.5MHZ
X0901	BL10901R	CRYSTAL
X0902	BL10311R	CRYSTAL
CN0201	EK11361	FLEXIBLE,CONNECTOR
CN0903	EF10265	CONNECTOR
⚠F0551	FM10261R	FUSE 1.5A
⚠F0552	FM10261R	FUSE 1.5A
⚠F0553	FM10261R	FUSE 1.5A
PG0001	1830309	CONNECTOR

SYMBOL NO	P-NO	DESCRIPTION
PG0101	EA11472R	PLUG
PG0201	1830118	CONNECTOR
PG0301	EA11043R	CONNECTOR
PG0471	5668671	MINI PLUG [TYPE 768,660,568,565,563,368,360]
PG0471	5668673	MINI PLUG [TYPE 765,665]
PG0552	5669194	PLUG
PG0601	5692362	MINI PLUG
PG0602	EA11474R	PLUG
PG0603	EA11471R	PLUG
PG0604	5668671	MINI PLUG
PG0701	5669199	PLUG
PG0731	EA10991R	CONNECTOR
PG0732	5669191	PLUG
PG0733	EA11364R	CONNECTOR
PG0734	EA11359R	CONNECTOR
PG0735	5669193	MINI PLUG
PG0736	5669166	PLUG
PG0901	EA11473R	PLUG
PG0902	EA10642R	CONNECTOR
PG0903	5669199	PLUG
PG0904	EA11741R	CONNECTOR
PG0905	5669196	PLUG
PG0906	5669167	MINI PLUG
PG0951	EA10971R	PLUG
PG1001	1830117	CONNECTOR
PG1301	EA10346R	PLUG
PG5301	EA11476R	CONNECTOR
PG5302	EA11359R	CONNECTOR
PG5303	EA11591R	CONNECTOR
PG5501	EA11477R	CONNECTOR
PG5701	EA11364R	CONNECTOR
SW0701	FB10321R	SWITCH
SW0702	FB10201R	SWITCH
SW0761	1742012	SWITCH
SW0762	1742012	SWITCH
SW0763	1742012	SWITCH
SW0764	FB10272R	SWITCH
SW0765	1742012	SWITCH
SW0766	1742012	SWITCH
SW0767	1742012	SWITCH
SW0768	FB10272R	SWITCH
SW0769	1742012	SWITCH
SW0770	1742012	SWITCH
SW0771	FB10272R	SWITCH
SW0772	FB10272R	SWITCH
SW0773	5635331	SWITCH
SW0781	1742012	SWITCH
SW5302	FB10272R	SWITCH
SW5303	FB10272R	SWITCH

CHAPTER 6

SCHEMATIC, CIRCUIT BOARD AND BLOCK DIAGRAMS/ MICROPROCESSOR PIN FUNCTION TABLE

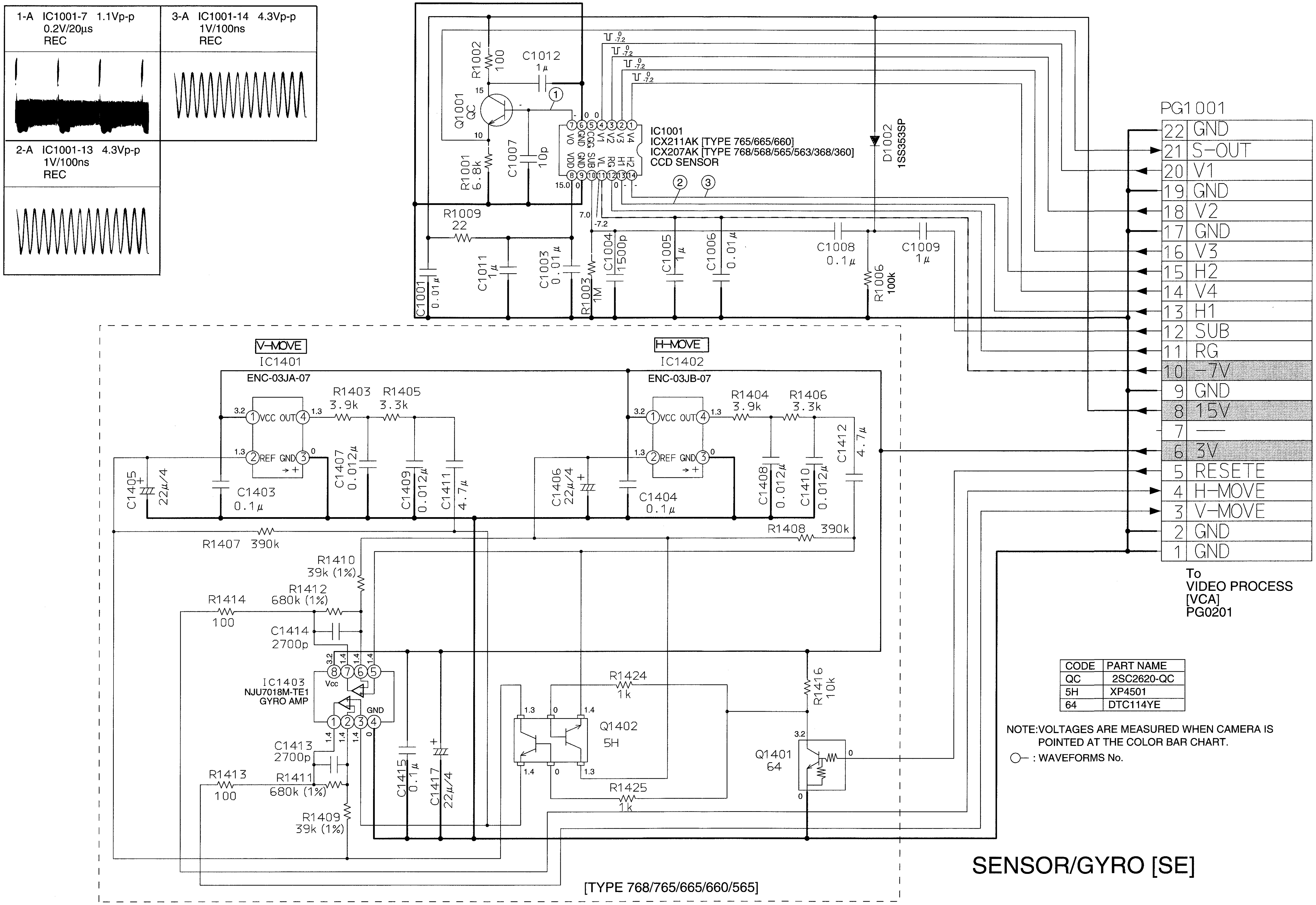
INTERNAL WIRING DIAGRAM


MECHA
MECHA.SENSOR
LOADING MOTOR
CYL. MOTOR
VIDEO HEADS
MODE SWITCH
CAPSTAN MOTOR
MIC
PG0471
4P (STEREO)
2P (MONAURAL)
PG0951
PG0604
PG0603
PG0101
PG0601
MECHA. ADJUST TERMINAL
PG0602
PG0901
TO MECHA
SERVICE ADJUST TERMINAL
PG0905
VCA
PSW
PG0701
CN0903
PG0903
PG0906
CR2025
PG0001
POWER TERMINAL UNIT
BOARD to BOARD
PG1301
PG0301
PG0001
CN0201
JACK UNIT
ZOOM,FOCUS,IRIS MOTOR
PG0902
PG0904
T/W,REC,EJECT UNIT
PG0201
BOARD to BOARD
SE
PG1001
[TYPE 768/765]
DC LIGHT
PG0552
LIGHT UNIT
#550A
PG5701
PG5501
2.5 BACK LIGHT
LCD
PG5303
PG5301
TEST TERMINAL
PG5302
2.5 LCD UNIT
#540A
PG0733
PG0734
PG0731
PG0732
PG0736
CON
PG0735
SPEAKER
LCD REVERSE SW
EVF UNIT
[TYPE 768/765/665/568/565/563]
[TYPE 768/765/665/568/565/563]
1
2
3
4
5
6
7
8
A
B
C
D
E

SENSOR/GYRO [SE] SCHEMATIC DIAGRAM

WAVEFORMS

1-A IC1001-7 1.1Vp-p
0.2V/20µs
REC
3-A IC1001-14 4.3Vp-p
1V/100ns
REC
2-A IC1001-13 4.3Vp-p
1V/100ns
REC

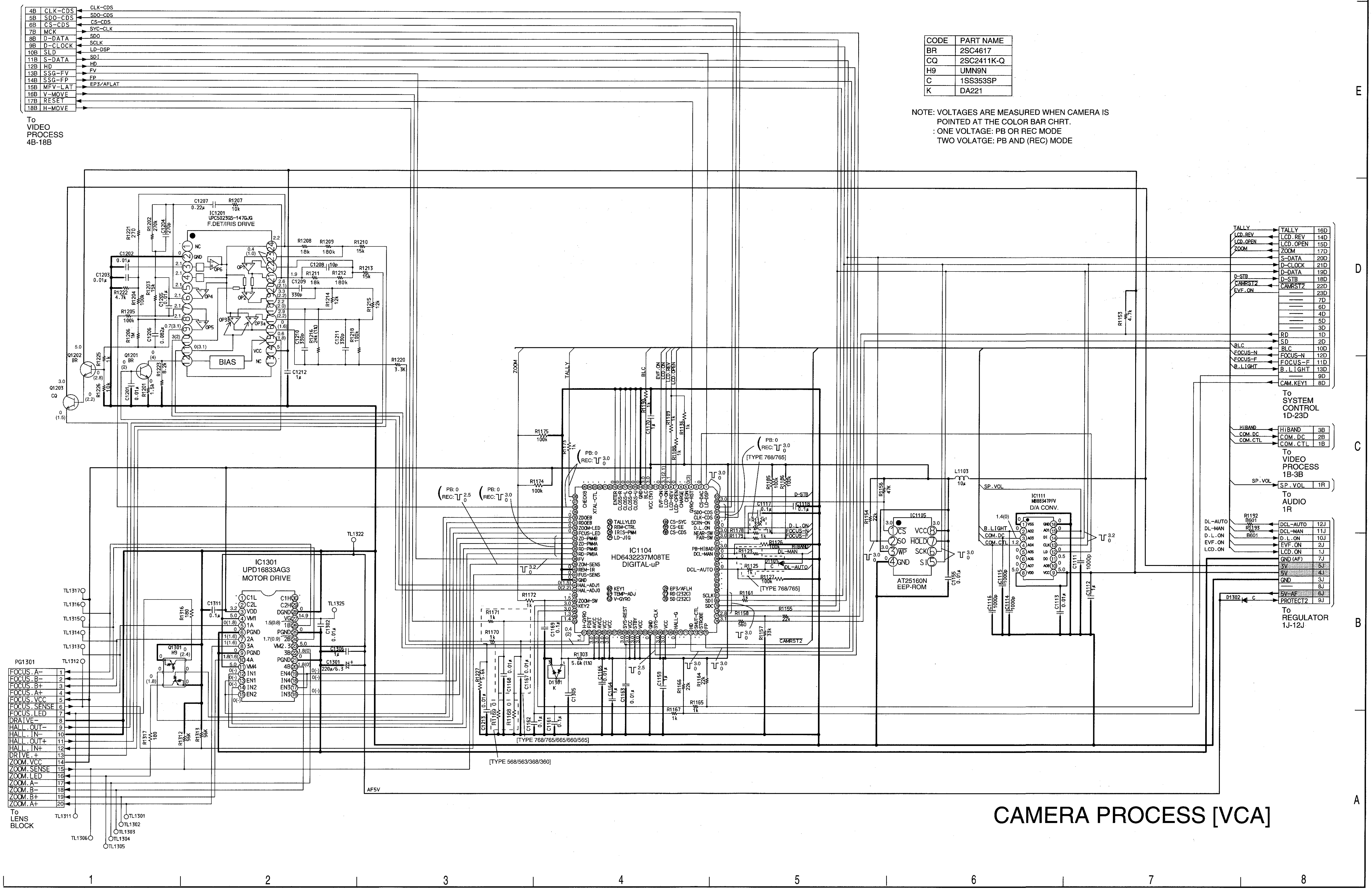

IC1001
ICX211AK [TYPE 765/665/660]
ICX207AK [TYPE 768/568/565/563/368/360]
CCD SENSOR
VO
VDD
GND
GND
CGG
SUB
V1
VL
V2
RG
V3
H1
V4
H2
Q1001
QC
R1002
100
C1012
1µ
R1001
6.8k
C1007
10p
R1009
22
C1001
0.01µ
C1011
1µ
C1003
0.01µ
R1003
1M
C1004
1500p
C1005
1µ
C1006
0.01µ
C1008
0.1µ
C1009
1µ
R1006
100k
D1002
1SS353SP
PG1001
22 GND
21 S-OUT
20 V1
19 GND
18 V2
17 GND
16 V3
15 H2
14 V4
13 H1
12 SUB
11 RG
10 -7V
9 GND
8 15V
7 —
6 3V
5 RESETE
4 H-MOVE
3 V-MOVE
2 GND
1 GND
To
VIDEO PROCESS
[VCA]
PG0201
V-MOVE
IC1401
ENC-03JA-07
VCC OUT
REF GND
R1403
3.9k
R1405
3.3k
C1405
22µ/4
C1403
0.1µ
C1407
0.012µ
C1409
0.012µ
C1411
4.7µ
R1407 390k
H-MOVE
IC1402
ENC-03JB-07
R1404
3.9k
R1406
3.3k
C1406
22µ/4
C1404
0.1µ
C1408
0.012µ
C1410
0.012µ
C1412
4.7µ
R1408 390k
R1410
39k (1%)
R1412
680k (1%)
R1414
100
C1414
2700p
IC1403
NJU7018M-TE1
GYRO AMP
Vcc
GND
C1413
2700p
R1413
100
R1411
680k (1%)
R1409
39k (1%)
C1415
0.1µ
C1417
22µ/4
R1424
1k
Q1402
5H
R1425
1k
R1416
10k
Q1401
64
[TYPE 768/765/665/660/565]
SENSOR/GYRO [SE]

CODE	PART NAME
QC	2SC2620-QC
5H	XP4501
64	DTC114YE

NOTE:VOLTAGES ARE MEASURED WHEN CAMERA IS POINTED AT THE COLOR BAR CHART.

○– : WAVEFORMS No.

CAMERA PROCESS [VCA] SCHEMATIC DIAGRAM


4B CLK-CDS
5B SDO-CDS
6B CS-CDS
7B MCK
8B D-DATA
9B D-CLOCK
10B SLD
11B S-DATA
12B HD
13B SSG-FV
14B SSG-FP
15B MFV-LAT
16B V-MOVE
17B RESET
18B H-MOVE
CLK-CDS
SDO-CDS
CS-CDS
SYC-CLK
SDO
SCLK
LD-DSP
SDI
HD
FV
FP
EP3/AFLAT
To VIDEO PROCESS 4B-18B
IC1201 UPC5023GS-147GJG F.DET/IRIS DRIVE
BIAS
Q1201 BR
Q1202 BR
Q1203 CQ
IC1301 UPD16833AG3 MOTOR DRIVE
IC1104 HD6432237M08TE DIGITAL-uP
IC1105 AT25160N EEP-ROM
IC1111 MB88347PFV D/A CONV.
PG1301
FOCUS.A- 1
FOCUS.B- 2
FOCUS.B+ 3
FOCUS.A+ 4
FOCUS.VCC 5
FOCUS.SENSE 6
FOCUS.LED 7
DRAIVE- 8
HALL.OUT- 9
HALL.IN- 10
HALL.OUT+ 11
HALL.IN+ 12
DRIVE.+ 13
ZOOM.VCC 14
ZOOM.SENSE 15
ZOOM.LED 16
ZOOM.A- 17
ZOOM.B- 18
ZOOM.B+ 19
ZOOM.A+ 20
To LENS BLOCK
TL1301 TL1302 TL1303 TL1304 TL1305 TL1306 TL1311 TL1312 TL1313 TL1314 TL1315 TL1316 TL1317 TL1322 TL1325
AF5V
[TYPE 768/765/665/660/565]
[TYPE 568/563/368/360]
[TYPE 768/765]
PB: 0 REC: 3.0
TALLY 16D
LCD.REV 14D
LCD.OPEN 15D
ZOOM 17D
S-DATA 20D
D-CLOCK 21D
D-DATA 19D
D-STB 18D
CAMRST2 22D
23D
7D
6D
4D
5D
3D
RD 1D
SD 2D
BLC 10D
FOCUS-N 12D
FOCUS-F 11D
B.LIGHT 13D
9D
CAM.KEY1 8D
To SYSTEM CONTROL 1D-23D
HiBAND 3B
COM.DC 2B
COM.CTL 1B
To VIDEO PROCESS 1B-3B
SP.VOL 1R
To AUDIO 1R
DCL-AUTO 12J
DCL-MAN 11J
D.L.ON 10J
EVF.ON 2J
LCD.ON 1J
GND (AF) 7J
3V 5J
5V 4J
GND 3J
8J
5V-AF 6J
PROTECT2 9J
To REGULATOR 1J-12J
R1192 B601
R1193 B601
D1302 C
L1103 10μ
E
D
C
B
A
1
2
3
4
5
6
7
8

CODE	PART NAME
BR	2SC4617
CQ	2SC2411K-Q
H9	UMN9N
C	1SS353SP
K	DA221

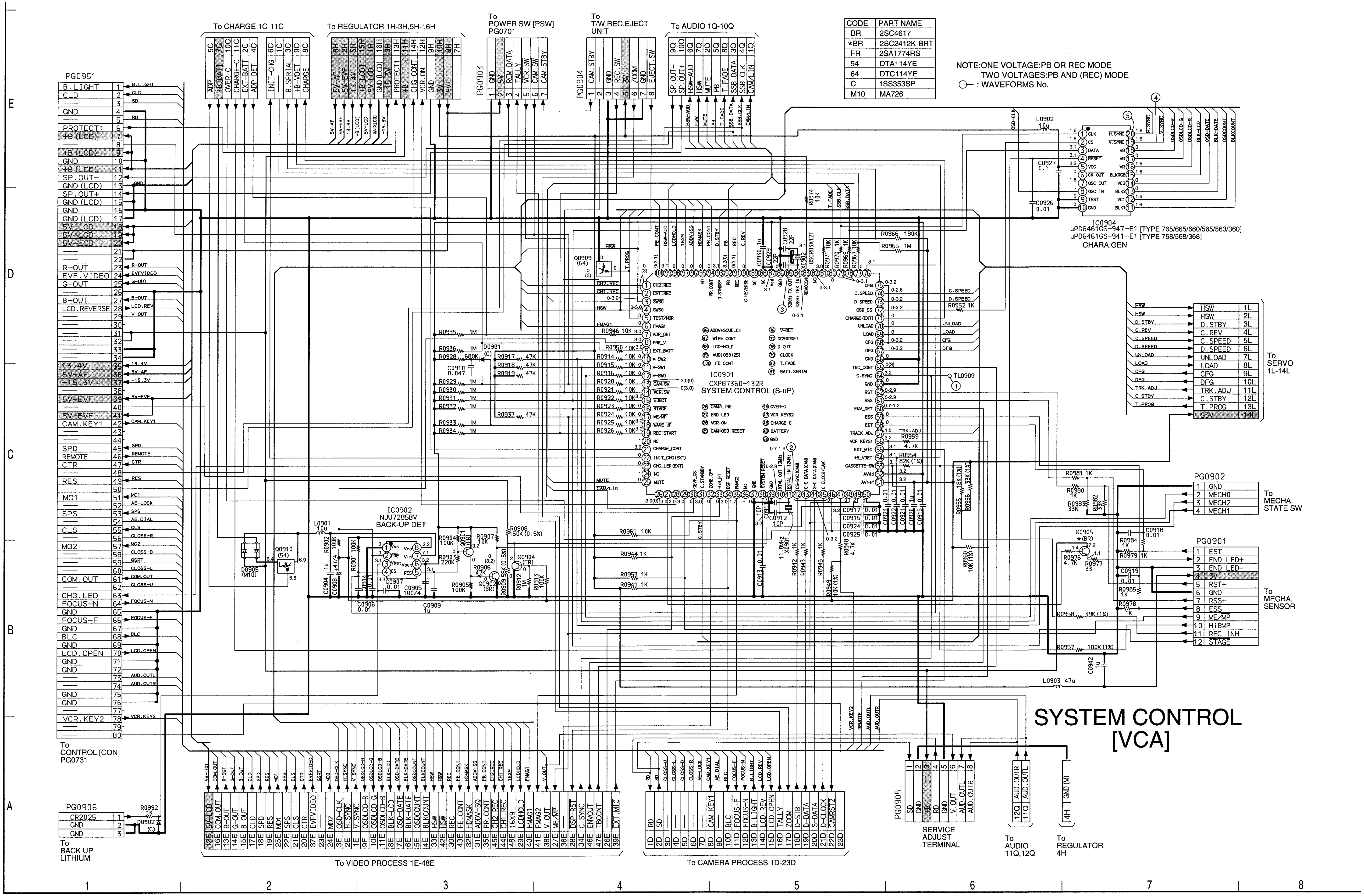
NOTE: VOLTAGES ARE MEASURED WHEN CAMERA IS
POINTED AT THE COLOR BAR CHRT.
: ONE VOLTAGE: PB OR REC MODE
TWO VOLATGE: PB AND (REC) MODE

CAMERA PROCESS [VCA]

SYSTEM CONTROL [VCA] SCHEMATIC DIAGRAM

CODE	PART NAME
BR	2SC4617
*BR	2SC2412K-BRT
FR	2SA1774RS
54	DTA114YE
64	DTC114YE
C	1SS353SP
M10	MA726

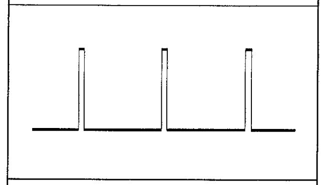
NOTE:ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
○— : WAVEFORMS No.



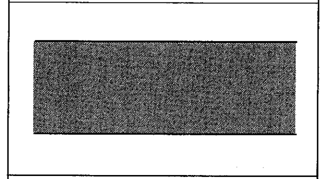
E
D
C
B
A
1
2
3
4
5
6
7
8
PG0951
B.LIGHT
CLD
GND
PROTECT1
+B(LCD)
SP.OUT-
GND(LCD)
SP.OUT+
5V-LCD
R-OUT
EVF.VIDEO
G-OUT
B-OUT
LCD.REVERSE
13.4V
5V-AF
-15.3V
5V-EVF
CAM.KEY1
SPD
REMOTE
CTR
RES
MO1
SPS
CLS
MO2
COM.OUT
CHG.LED
FOCUS-N
FOCUS-F
BLC
LCD.OPEN
VCR.KEY2
To CONTROL [CON] PG0731
To CHARGE 1C-11C
ADP
+B(BATT)
OVER-C
CHARGE-C
EXT-BATT
ADP-DET
INIT-CHG
B.SERIAL
B-VDET
CHARGE
To REGULATOR 1H-3H,5H-16H
5V-AF
5V-EVF
13.4V
+B(LCD)
5V-LCD
GND(LCD)
-15.3V
PROTECT1
+B
CHG-CONT
VCR.ON
GND
3V
5V
To POWER SW [PSW] PG0701
PG0903
GND
5V
REM.DATA
TALLY
VCR.SW
CAM.SW
CAM.STBY
To T/W,REC,EJECT UNIT
PG0904
CAM.STBY
GND
REC.SW
3V
ZOOM
GND
EJECT.SW
To AUDIO 1Q-10Q
SP.OUT-
SP.OUT+
HSW-AUD
HSW
MUTE
PB
T.FADE
SSB.DATA
SSB.CLK
CAM/LIN
IC0901
CXP87360-132R
SYSTEM CONTROL (S-uP)
IC0902
NJU7285BV
BACK-UP DET
IC0904
uPD6461GS-947-E1 [TYPE 765/665/660/565/563/360]
uPD6461GS-941-E1 [TYPE 768/568/368]
CHARA.GEN
Q0909 (64)
Q0910 (54)
D0905 (M10)
D0901 (C)
Q0901 (FR)
Q0902 (BR)
Q0903 (BR)
Q0904 (FR)
Q0905 *(BR)
X0901 11.8MHz
X0902 32kHz
TL0909
L0901 10u
L0902 10u
L0903 47u
To SERVO 1L-14L
HSW
D.STBY
C.REV
C.SPEED
D.SPEED
UNLOAD
LOAD
CFG
DFG
TRK.ADJ
C.STBY
T.PROG
S3V
PG0902
GND
MECH0
MECH2
MECH1
To MECHA. STATE SW
PG0901
EST
END LED+
END LED-
3V
RST+
GND
RSS+
ESS
ME/MP
Hi8MP
REC INH
STAGE
To MECHA. SENSOR
PG0906
CR2025
GND
To BACK UP LITHIUM
To VIDEO PROCESS 1E-48E
To CAMERA PROCESS 1D-23D
PG0905
SD
GND
+B
RD
GND
V.OUT
AUD.OUTL
AUD.OUTR
SERVICE ADJUST TERMINAL
To AUDIO 11Q,12Q
To REGULATOR 4H
SYSTEM CONTROL [VCA]

SYSTEM CONTROL WAVEFORMES

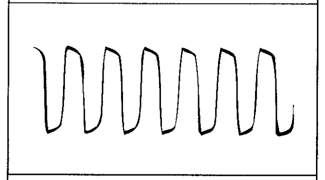
1-A TL909 3.0Vp-p
1V/20µs
REC/PLAY



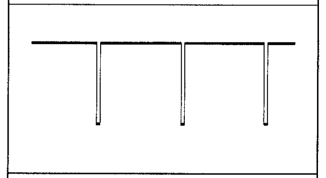
2-A IC901-41 200mVp-p
0.5V/20µs
REC/PLAY



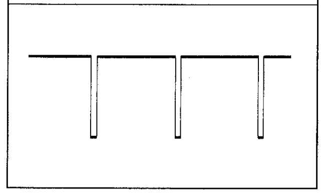
3-A IC901-85 3.5Vp-p
1V/20µs
REC/PLAY



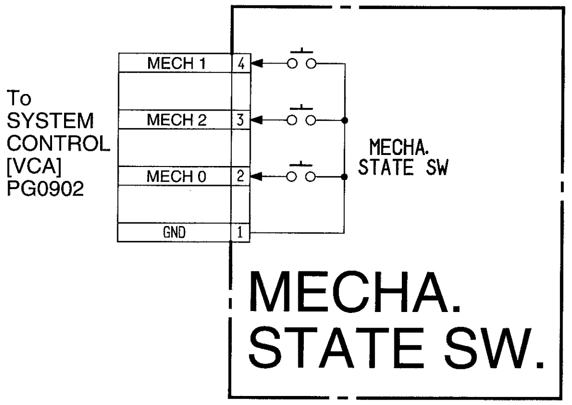
4-A IC904-19 3.0Vp-p
1V/5ms
REC/PLAY

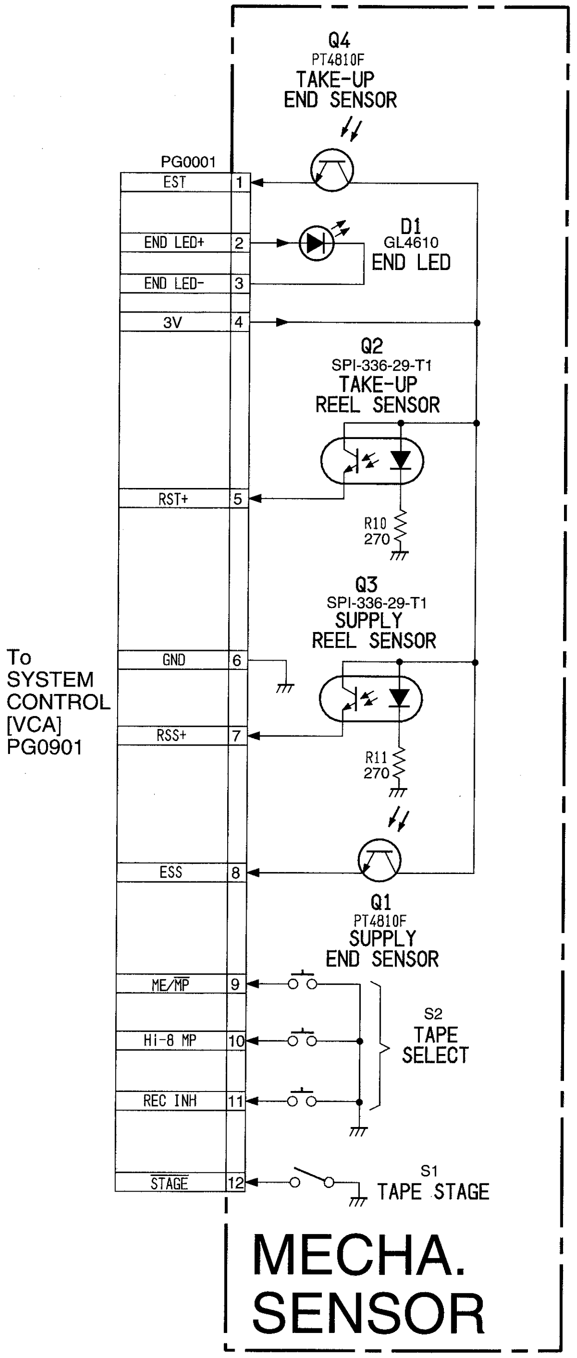


5-A IC904-20 3.0Vp-p
1V/20µs
REC/PLAY

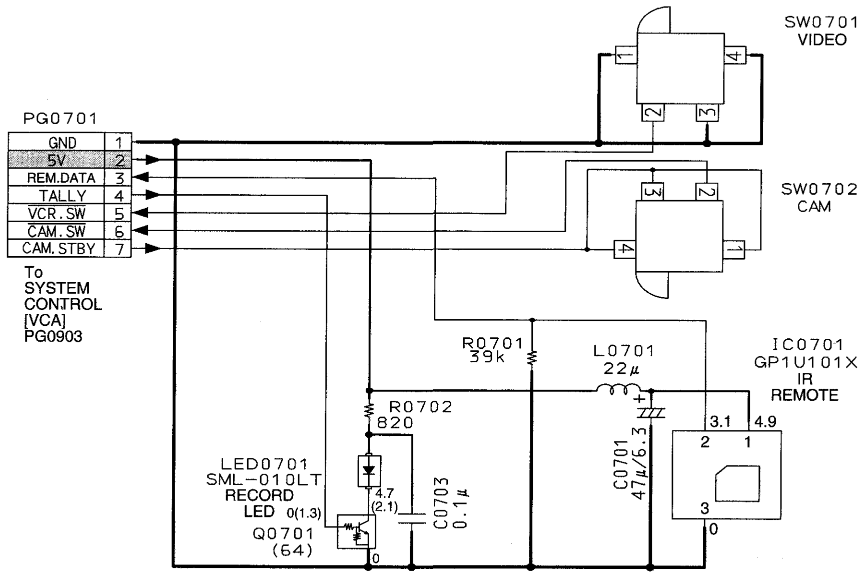


MECHA. STATE SWITCH/MECHA. SENSOR SCHEMATIC DIAGRAMS


To SYSTEM CONTROL [VCA] PG0902
MECH 1
MECH 2
MECH 0
GND
MECHA. STATE SW
MECHA. STATE SW.


PG0001
EST
END LED+
END LED-
3V
RST+
GND
RSS+
ESS
ME/MP
Hi-8 MP
REC INH
STAGE
To SYSTEM CONTROL [VCA] PG0901
Q4 PT4810F TAKE-UP END SENSOR
D1 GL4610 END LED
Q2 SPI-336-29-T1 TAKE-UP REEL SENSOR
R10 270
Q3 SPI-336-29-T1 SUPPLY REEL SENSOR
R11 270
Q1 PT4810F SUPPLY END SENSOR
S2 TAPE SELECT
S1 TAPE STAGE
MECHA. SENSOR

POWER SW [PSW] SCHEMATIC DIAGRAM

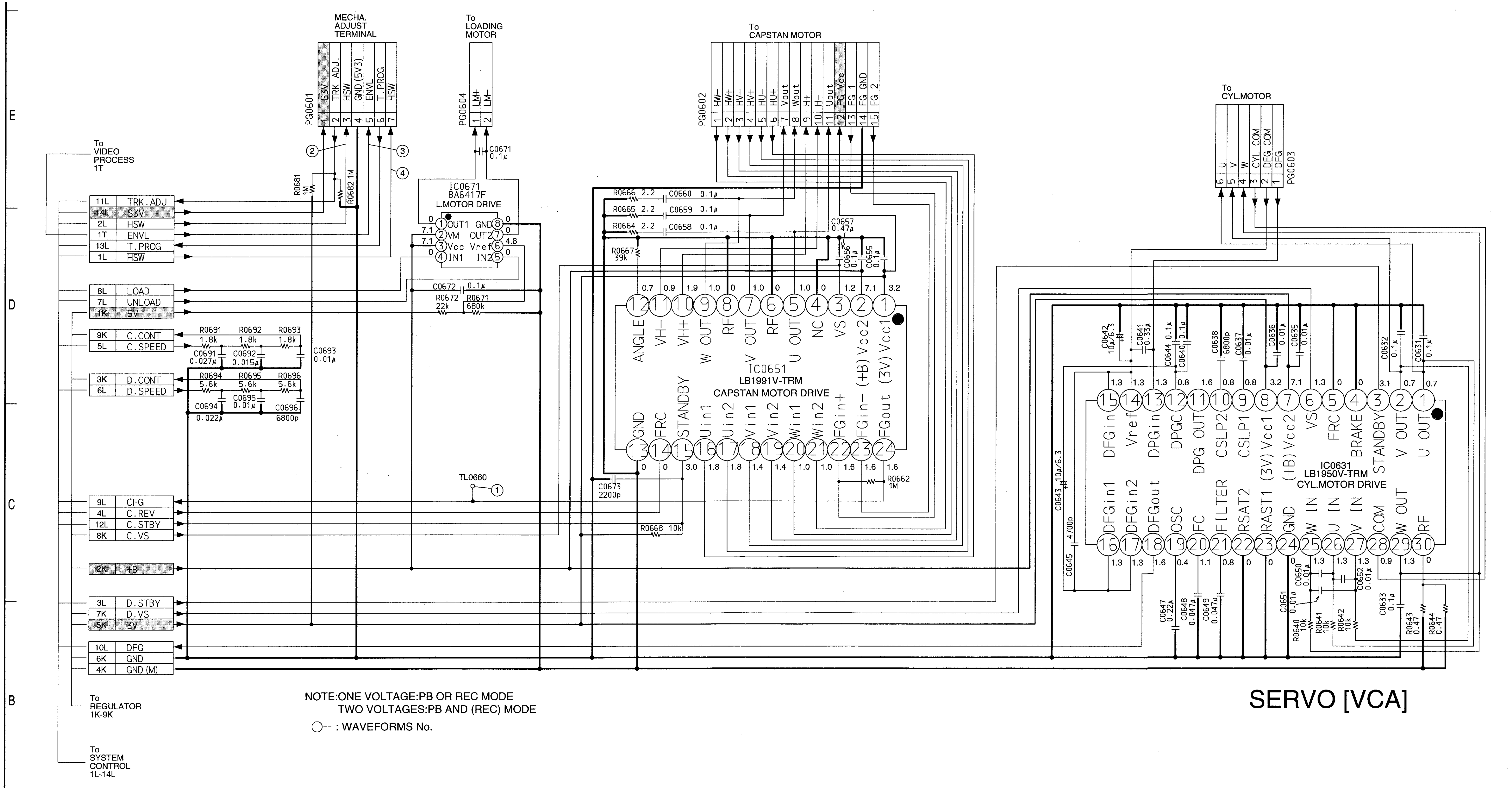

PG0701
GND
5V
REM.DATA
TALLY
VCR.SW
CAM.SW
CAM.STBY
To SYSTEM CONTROL [VCA] PG0903
SW0701 VIDEO
SW0702 CAM
R0701 39k
L0701 22µ
IC0701 GP1U101X IR REMOTE
R0702 820
LED0701 SML-010LT RECORD LED
Q0701 (64)
C0703 0.1µ
C0701 47µ/6.3
3.1
4.9
4.7 (2.1)
0(1.3)
0

CODE	PART NAME
64	DTC114YE

*ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE

POWER SW [PSW]

SERVO [VCA] SCHEMATIC DIAGRAM


MECHA. ADJUST TERMINAL
PG0601
1 S3V
2 TRK ADJ.
3 HSW
4 GND (5V3)
5 ENVL
6 T.PROG
7 HSW
To LOADING MOTOR
PG0604
1 LM+
2 LM−
C0671 0.1μ
To CAPSTAN MOTOR
PG0602
1 HW−
2 HW+
3 HV−
4 HV+
5 HU−
6 HU+
7 Vout
8 Wout
9 H+
10 H−
11 Uout
12 FG Vcc
13 FG 1
14 FG GND
15 FG 2
To CYL.MOTOR
PG0603
6 U
5 V
4 W
3 CYL COM
2 DFG COM
1 DFG
To VIDEO PROCESS 1T
R0681 1M
R0682 1M
11L TRK.ADJ
14L S3V
2L HSW
1T ENVL
13L T.PROG
1L HSW
8L LOAD
7L UNLOAD
1K 5V
9K C.CONT
5L C.SPEED
3K D.CONT
6L D.SPEED
9L CFG
4L C.REV
12L C.STBY
8K C.VS
2K +B
3L D.STBY
7K D.VS
5K 3V
10L DFG
6K GND
4K GND (M)
To REGULATOR 1K-9K
To SYSTEM CONTROL 1L-14L
IC0671 BA6417F L.MOTOR DRIVE
1 OUT1
2 VM
3 Vcc
4 IN1
5 IN2
6 Vref
7 OUT2
8 GND
C0672 0.1μ
R0672 22k
R0671 680k
R0691 1.8k
R0692 1.8k
R0693 1.8k
C0691 0.027μ
C0692 0.015μ
C0693 0.01μ
R0694 5.6k
R0695 5.6k
R0696 5.6k
C0694 0.022μ
C0695 0.01μ
C0696 6800p
R0666 2.2
R0665 2.2
R0664 2.2
C0660 0.1μ
C0659 0.1μ
C0658 0.1μ
R0667 39k
C0657 0.47μ
C0656 0.1μ
C0655 0.1μ
IC0651 LB1991V-TRM CAPSTAN MOTOR DRIVE
1 (3V) Vcc1
2 (+B) Vcc2
3 VS
4 NC
5 U OUT
6 RF
7 V OUT
8 RF
9 W OUT
10 VH+
11 VH−
12 ANGLE
13 GND
14 FRC
15 STANDBY
16 Uin1
17 Uin2
18 Vin1
19 Vin2
20 Win1
21 Win2
22 FGin+
23 FGin−
24 FGout
C0673 2200p
R0662 1M
R0668 10k
TL0660
IC0631 LB1950V-TRM CYL.MOTOR DRIVE
1 U OUT
2 V OUT
3 STANDBY
4 BRAKE
5 FRC
6 VS
7 (+B) Vcc2
8 (3V) Vcc1
9 CSLP1
10 CSLP2
11 DPG OUT
12 DPGC
13 DPGin
14 Vref
15 DFGin
16 DFGin1
17 DFGin2
18 DFGout
19 OSC
20 FC
21 FILTER
22 RSAT2
23 RAST1
24 GND
25 W IN
26 U IN
27 V IN
28 COM
29 W OUT
30 RF
C0642 10μ/6.3
C0641 0.33μ
C0644 0.1μ
C0640 0.1μ
C0638 6800p
C0637 0.01μ
C0636 0.01μ
C0635 0.01μ
C0632 0.1μ
C0631 0.1μ
C0643 10μ/6.3
C0645 4700p
C0647 0.22μ
C0648 0.047μ
C0649 0.047μ
C0651 0.01μ
C0650 0.01μ
C0652 0.01μ
C0633 0.1μ
R0640 10k
R0641 10k
R0642 10k
R0643 0.47
R0644 0.47

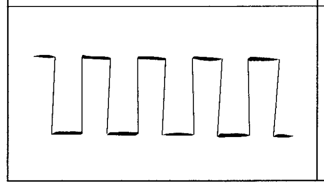
NOTE:ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE

○ : WAVEFORMS No.

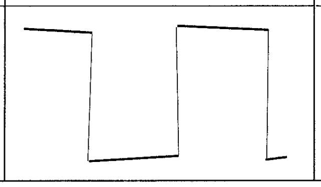
SERVO [VCA]

SERVO WAVEFORMS

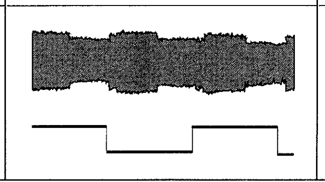
1-A TL660 3.1Vp-p
1V/500μs
REC/PLAY



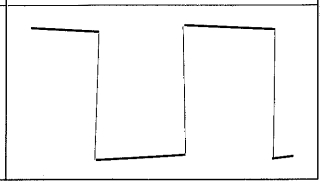
2-A PG601-3 3.2Vp-p
0.5V/5ms
REC/PLAY



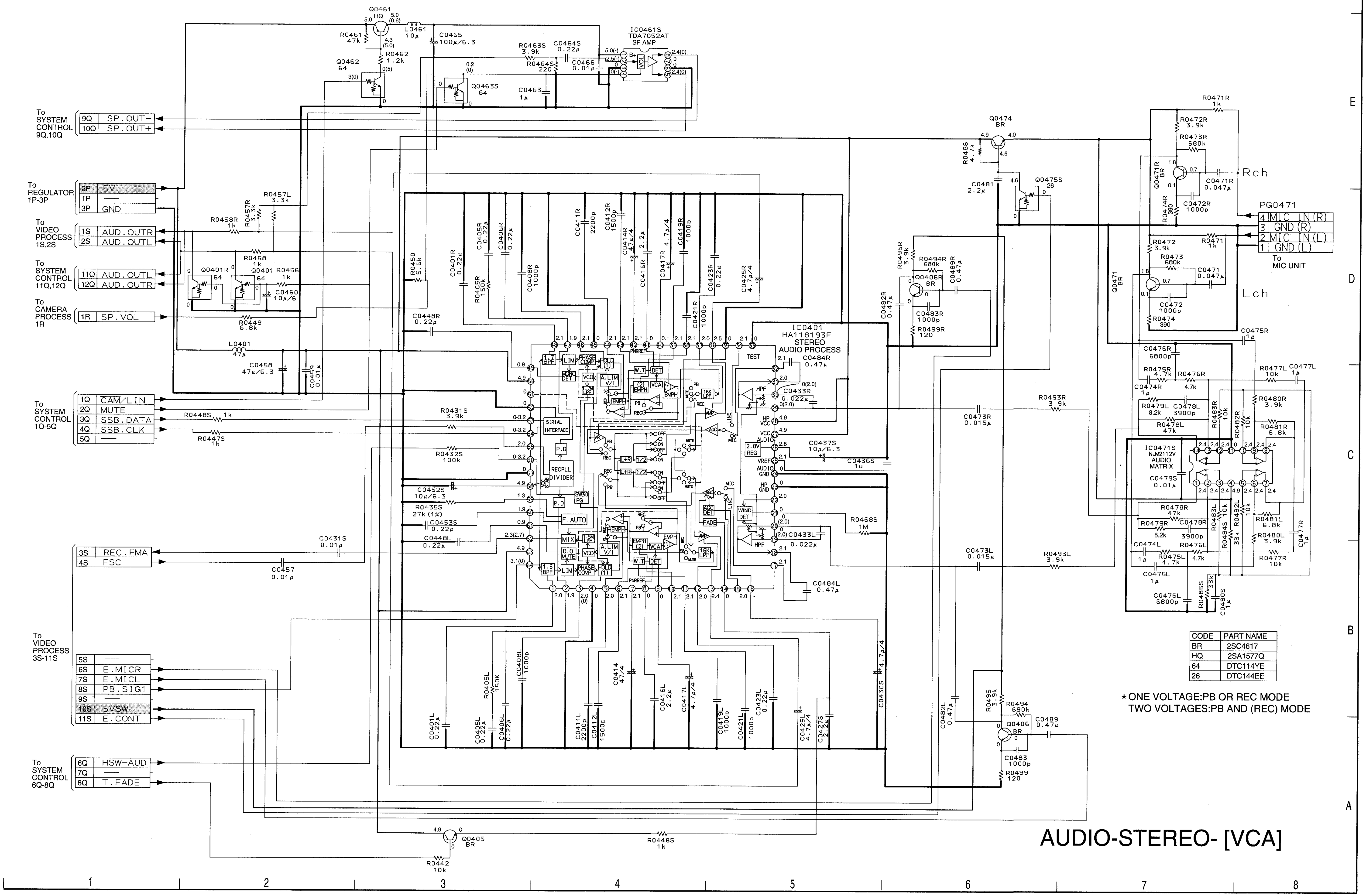
3-B PG601-5 580mVp-p
0.2V/5ms
PLAY



4-A PG601-7 3.2Vp-p
0.5V/5ms
REC/PLAY



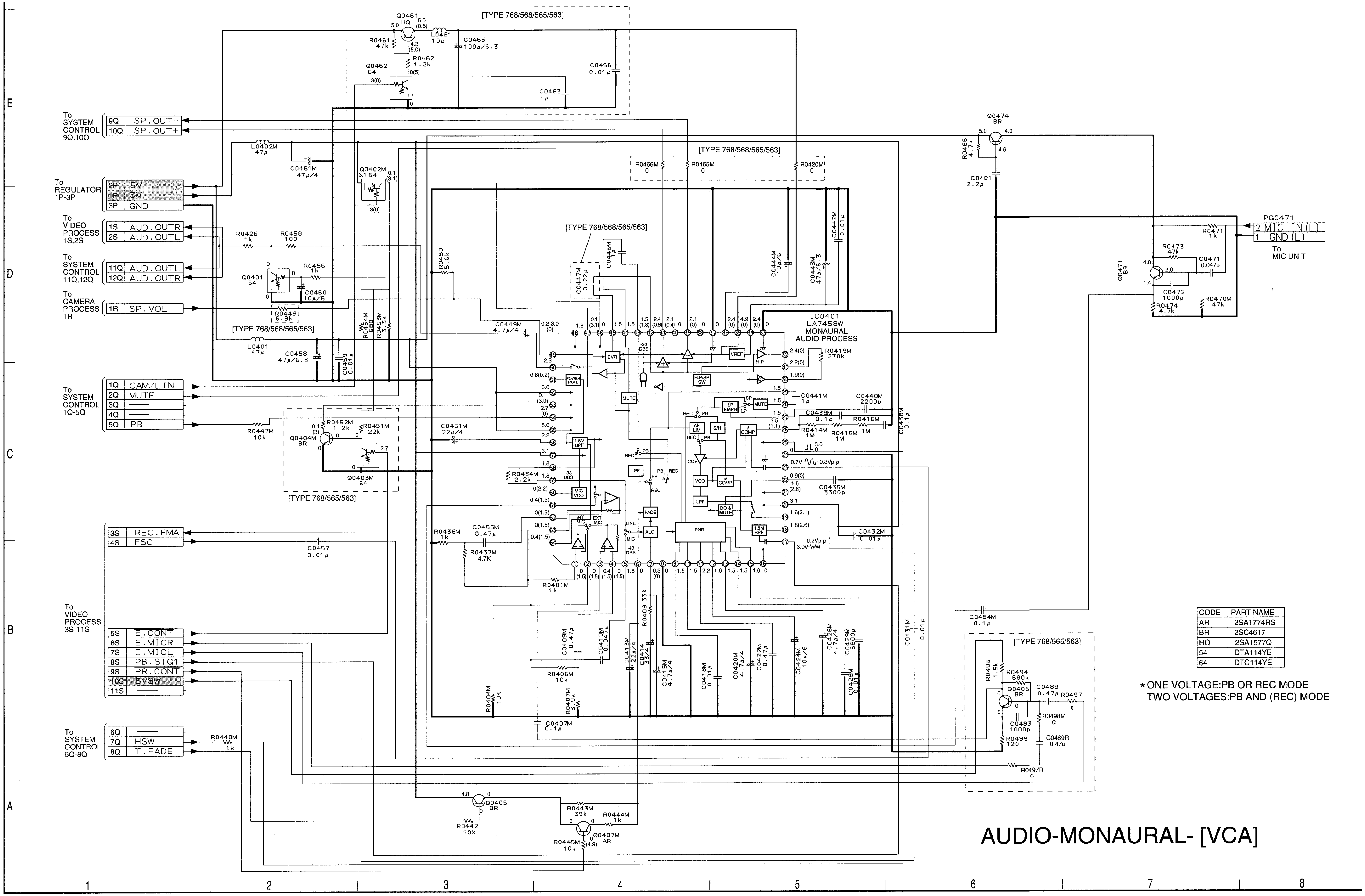
AUDIO -STEREO- [VCA] SCHEMATIC DIAGRAM [TYPE 765/665]


Q0461 HQ
Q0462 64
Q0463S 64
IC0461S TDA7052AT SP AMP
To SYSTEM CONTROL 9Q,10Q
9Q SP.OUT−
10Q SP.OUT+
To REGULATOR 1P-3P
2P 5V
1P —
3P GND
To VIDEO PROCESS 1S,2S
1S AUD.OUTR
2S AUD.OUTL
To SYSTEM CONTROL 11Q,12Q
11Q AUD.OUTL
12Q AUD.OUTR
Q0401R 64
Q0401 64
To CAMERA PROCESS 1R
1R SP.VOL
L0401 47μ
To SYSTEM CONTROL 1Q-5Q
1Q CAM/LIN
2Q MUTE
3Q SSB.DATA
4Q SSB.CLK
5Q —
3S REC.FMA
4S FSC
To VIDEO PROCESS 3S-11S
5S —
6S E.MICR
7S E.MICL
8S PB.SIG1
9S —
10S 5VSW
11S E.CONT
To SYSTEM CONTROL 6Q-8Q
6Q HSW-AUD
7Q —
8Q T.FADE
IC0401 HA118193F STEREO AUDIO PROCESS
Q0405 BR
Q0474 BR
Q0475S 26
Q0406R BR
Q0406 BR
Q0471R BR
Q0471 BR
Rch
Lch
PG0471
4 MIC IN(R)
3 GND(R)
2 MIC IN(L)
1 GND(L)
To MIC UNIT
IC0471S NJM2112V AUDIO MATRIX
AUDIO-STEREO- [VCA]
A
B
C
D
E
1
2
3
4
5
6
7
8

CODE	PART NAME
BR	2SC4617
HQ	2SA1577Q
64	DTC114YE
26	DTC144EE

*ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE

AUDIO -MONAURAL- [VCA] SCHEMATIC DIAGRAM [TYPE 768/660/568/565/563/368/360]

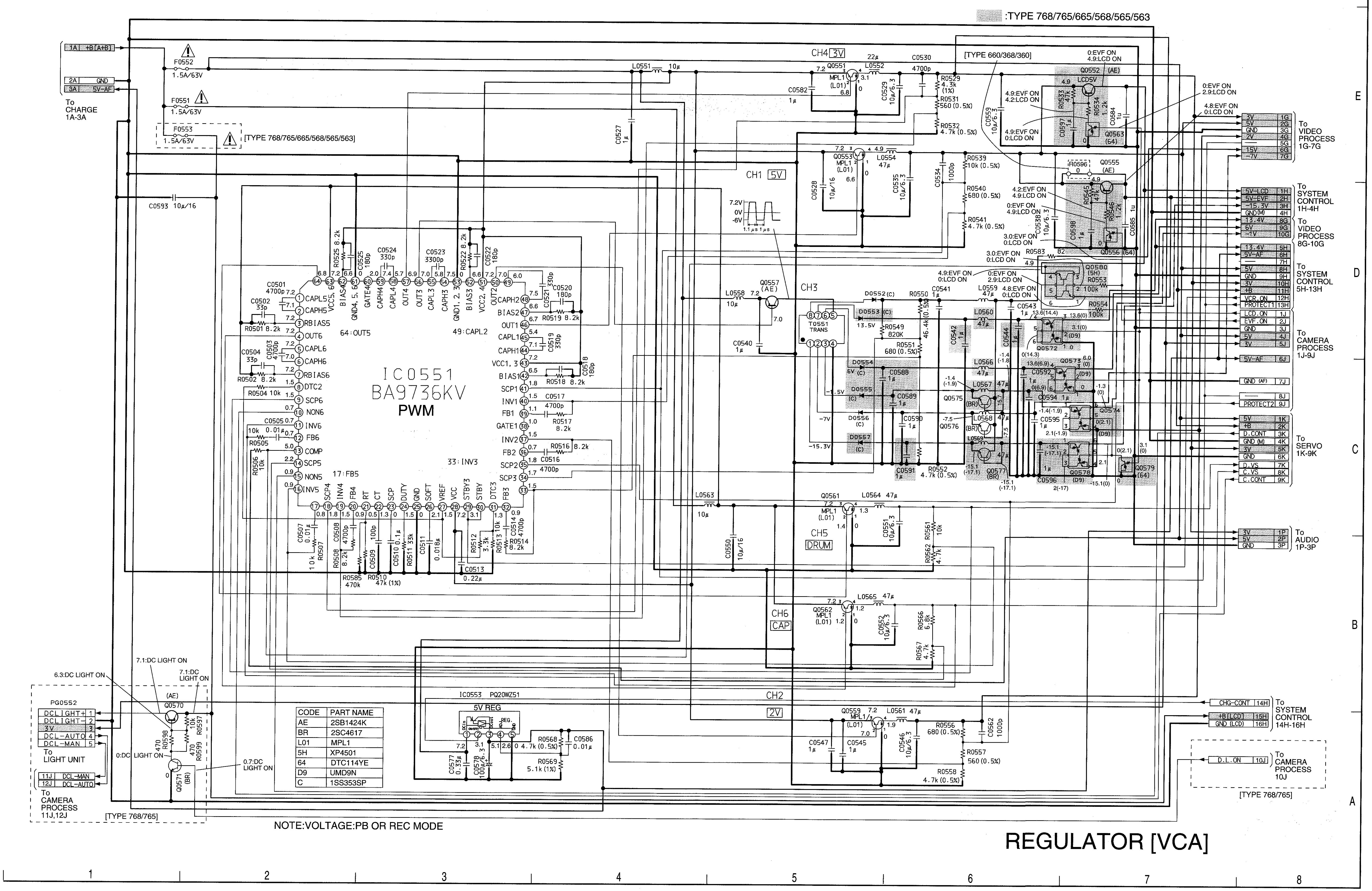

To SYSTEM CONTROL 9Q,10Q
9Q SP.OUT−
10Q SP.OUT+
To REGULATOR 1P-3P
2P 5V
1P 3V
3P GND
To VIDEO PROCESS 1S,2S
1S AUD.OUTR
2S AUD.OUTL
To SYSTEM CONTROL 11Q,12Q
11Q AUD.OUTL
12Q AUD.OUTR
To CAMERA PROCESS 1R
1R SP.VOL
To SYSTEM CONTROL 1Q-5Q
1Q CAM/LIN
2Q MUTE
3Q
4Q
5Q PB
3S REC.FMA
4S FSC
To VIDEO PROCESS 3S-11S
5S E.CONT
6S E.MICR
7S E.MICL
8S PB.SIG1
9S PR.CONT
10S 5VSW
11S
To SYSTEM CONTROL 6Q-8Q
6Q
7Q HSW
8Q T.FADE
[TYPE 768/568/565/563]
[TYPE 768/565/563]
IC0401 LA7458W MONAURAL AUDIO PROCESS
Q0461 HQ
Q0462 64
Q0402M 54
Q0401 64
Q0404M BR
Q0403M 64
Q0405 BR
Q0407M AR
Q0474 BR
Q0471 BR
Q0406 BR
PG0471
2 MIC IN(L)
1 GND(L)
To MIC UNIT
EVR
VREF
H.P/SP SW
MUTE
POWER MUTE
LP EMPH
AF LIM
S/H
COMP
LPF
VCO
DO & MUTE
1.5M BPF
MIC VCO
FADE
ALC
PNR
INT MIC
EXT MIC
1
2
3
4
5
6
7
8
A
B
C
D
E

CODE	PART NAME
AR	2SA1774RS
BR	2SC4617
HQ	2SA1577Q
54	DTA114YE
64	DTC114YE

*ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE

AUDIO-MONAURAL- [VCA]

REGULATOR [VCA] SCHEMATIC DIAGRAM

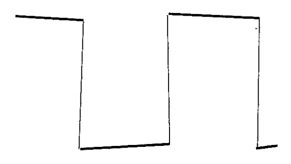
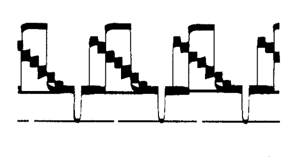
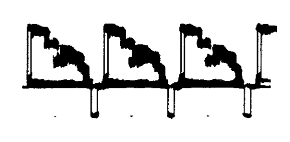
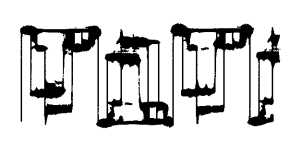
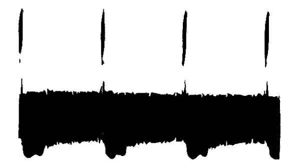
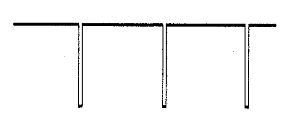
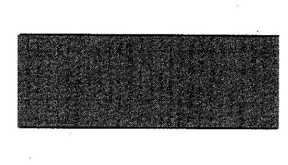
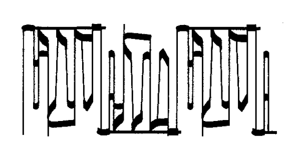
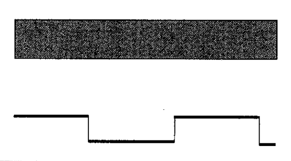
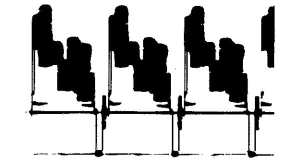
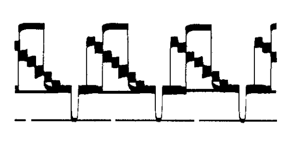
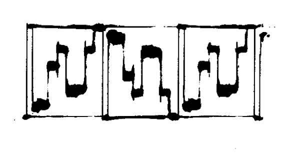
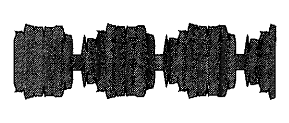
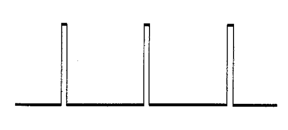
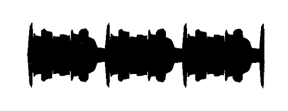
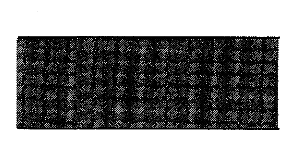
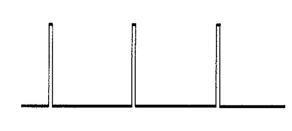
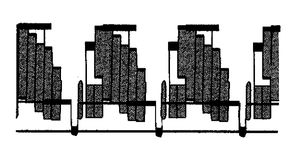
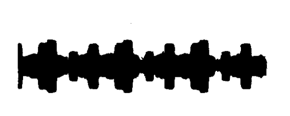
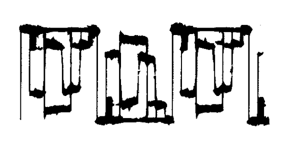
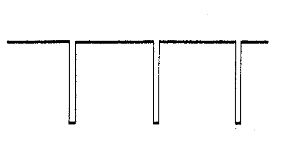
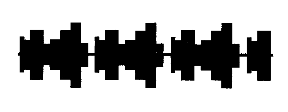
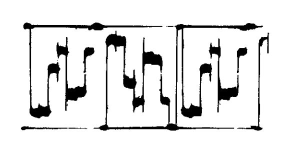
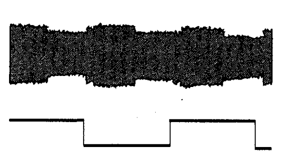
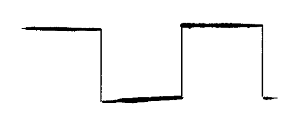
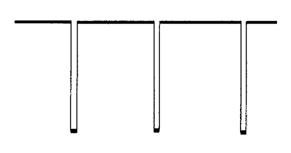
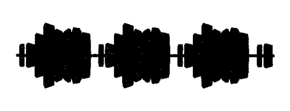
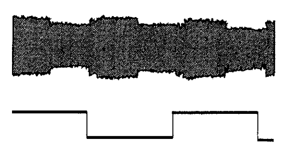
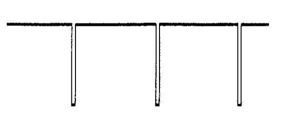
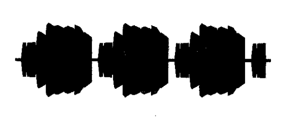
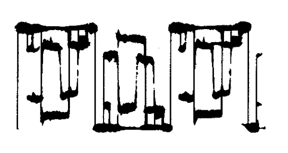
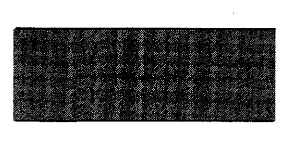
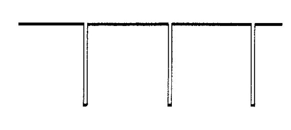
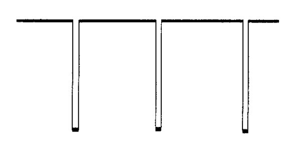
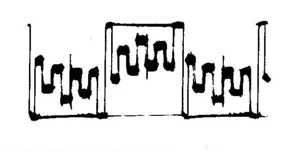
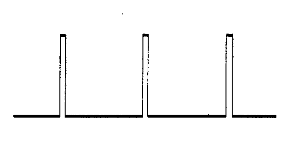
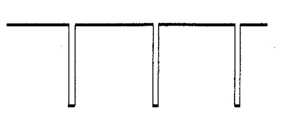
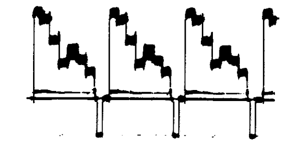
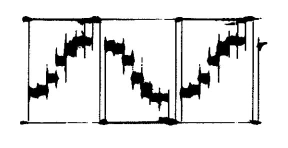
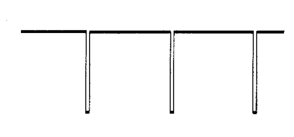
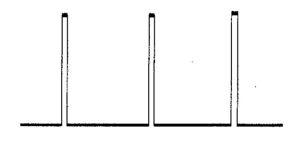
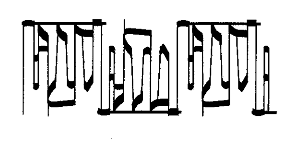
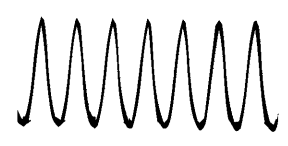
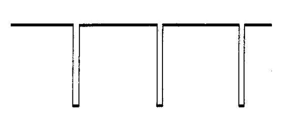
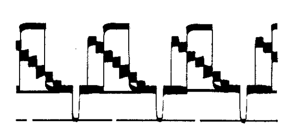
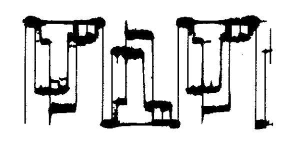
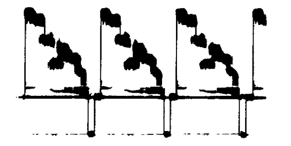
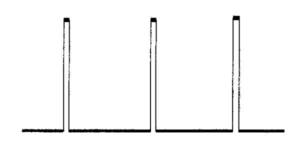
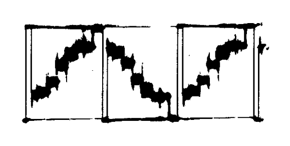
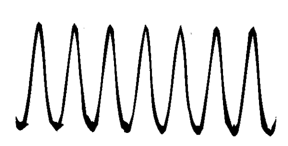
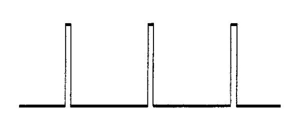
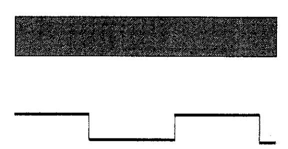
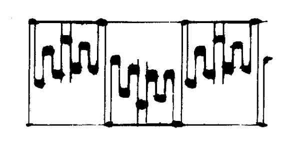

:TYPE 768/765/665/568/565/563
1A +B [A+B]
2A GND
3A 5V-AF
To CHARGE 1A-3A
F0552 1.5A/63V
F0551 1.5A/63V
F0553 1.5A/63V
[TYPE 768/765/665/568/565/563]
C0593 10µ/16
L0551 10µ
C0527 1µ
CH4 3V
Q0551 MPL1 (L01)
L0552 22µ
C0530 4700p
C0582 1µ
C0529 10µ/6.3
R0529 4.3k (1%)
R0531 560 (0.5%)
R0532 4.7k (0.5%)
[TYPE 660/368/360]
Q0552 (AE)
LCD5V
R0533 47k
R0534 1.2k
C0584 1µ
C0597 1µ
Q0563 (64)
0:EVF ON 4.9:LCD ON
0:EVF ON 2.9:LCD ON
4.8:EVF ON 0:LCD ON
4.9:EVF ON 4.2:LCD ON
4.9:EVF ON 0:LCD ON
Q0553 MPL1 (L01)
L0554 47µ
C0528 10µ/16
C0535 10µ/6.3
C0534 1000p
R0539 10k (0.5%)
R0540 680 (0.5%)
R0541 4.7k (0.5%)
CH1 5V
7.2V 0V -6V
1.1µs 1µs
C0559 10µ/6.3
R0596 0
Q0555 (AE)
R0545 47k
R0546 1.2k
C0538 10µ/6.3
C0598 1µ
C0585 1u
Q0556 (64)
R0583
Q0580 (5H)
R0553 100k
R0554 100k
3V 1G
5V 2G
GND 3G
2V 4G
— 5G
15V 6G
-7V 7G
To VIDEO PROCESS 1G-7G
5V-LCD 1H
5V-EVF 2H
-15.3V 3H
GND(M) 4H
To SYSTEM CONTROL 1H-4H
13.4V 8G
6V 9G
-7V 10G
To VIDEO PROCESS 8G-10G
13.4V 5H
5V-AF 6H
7H
5V 8H
GND 9H
3V 10H
+B 11H
VCR.ON 12H
PROTECT1 13H
To SYSTEM CONTROL 5H-13H
LCD.ON 1J
EVF.ON 2J
GND 3J
5V 4J
3V 5J
5V-AF 6J
To CAMERA PROCESS 1J-9J
GND (AF) 7J
8J
PROTECT2 9J
5V 1K
+B 2K
D.CONT 3K
GND (M) 4K
3V 5K
GND 6K
D.VS 7K
C.VS 8K
C.CONT 9K
To SERVO 1K-9K
3V 1P
5V 2P
GND 3P
To AUDIO 1P-3P
CHG-CONT 14H
+B [LCD] 15H
GND (LCD) 16H
To SYSTEM CONTROL 14H-16H
D.L.ON 10J
To CAMERA PROCESS 10J
[TYPE 768/765]
L0558 10µ
Q0557 (AE)
C0540 1µ
CH3
T0551 TRANS
D0552 (C)
D0553 (C)
R0550 1µ
R0549 820K
R0551 680 (0.5%)
C0541
L0559 47µ
C0543 1µ
L0560 47µ
C0542 1µ
C0544 1µ
Q0572
Q0573
D0554 (C)
D0555 (C)
D0556 (C)
D0557 (C)
C0588 1µ
C0589 1µ
C0590 1µ
C0591 1µ
L0566 47µ
L0567 47µ
L0568 47µ
L0569 47µ
Q0575 (BR)
Q0576 (BR)
Q0577 (BR)
C0592 1µ
C0594 1µ
C0595 1µ
C0596 1µ
Q0574
Q0578
Q0579 (64)
R0552 4.7k (0.5%)
IC0551 BA9736KV PWM
CAPL5 CAPH5 RBIAS5 OUT6 CAPL6 CAPH6 RBIAS6 DTC2 SCP6 NON6 INV6 FB6 COMP SCP5 NON5 INV5
VCC5, 6 BIAS4 GND4, 5, 6 GATE4 CAPH4 CAPL4 OUT4 OUT3 CAPL3 CAPH3 BIAS3 GND1, 2, 3 VCC2, 4 OUT2
CAPH2 BIAS2 OUT1 CAPL1 CAPH1 VCC1, 3 BIAS1 SCP1 INV1 FB1 GATE1 INV2 FB2 SCP2 SCP3
SCP4 INV4 FB4 RT CT SCP DUTY GND SOFT VREF VCC STBY3 STBY DTC3 FB3
64:OUT5
49:CAPL2
33:INV3
17:FB5
C0501 4700p
C0502 33p
R0501 8.2k
C0503 4700p
C0504 33p
R0502 8.2k
R0504 10k
C0505 0.01µ
R0505 10k
R0506 10k
R0525 8.2k
C0525 180p
C0524 330p
C0523 3300p
R0522 8.2k
C0522 180p
C0521 330p
C0520 180p
R0519 8.2k
C0519 330p
C0518 180p
R0518 8.2k
C0517 4700p
R0517 8.2k
R0516 8.2k
C0516 4700p
C0507 0.01µ
R0507 10k
C0508 4700p
R0508 8.2k
R0585 470k
C0509 100p
R0510 47k (1%)
C0510 0.1µ
R0511 33k
C0511 0.018µ
R0512 3.3k
R0513 10k
C0513 0.22µ
C0514 4700p
R0514 8.2k
L0563 10µ
C0550 10µ/16
Q0561 MPL1 (L01)
L0564 47µ
CH5 DRUM
C0551 10µ/6.3
R0561 10k
R0562 4.7k
CH6 CAP
Q0562 MPL1 (L01)
L0565 47µ
C0552 10µ/6.3
R0566 6.8k
R0567 4.7k
CH2 2V
Q0559 MPL1 (L01)
L0561 47µ
C0547 1µ
C0545 1µ
C0546 10µ/6.3
R0556 680 (0.5%)
C0562 1000p
R0557 560 (0.5%)
R0558 4.7k (0.5%)
IC0553 PQ20WZ51
5V REG
R0568 4.7k (0.5%)
C0586 0.01µ
R0569 5.1k (1%)
C0577 0.33µ
C0578 100µ/6.3
6.3:DC LIGHT ON
7.1:DC LIGHT ON
7.1:DC LIGHT ON
PG0552
DCLIGHT+ 1
DCLIGHT- 2
3V 3
DCL-AUTO 4
DCL-MAN 5
To LIGHT UNIT
Q0570 (AE)
R0598 470
R0597 10k
R0599 470
0:DC LIGHT ON
0.7:DC LIGHT ON
Q0571 (BR)
11J DCL-MAN
12J DCL-AUTO
To CAMERA PROCESS 11J,12J
[TYPE 768/765]
1 2 3 4 5 6 7 8
A B C D E

CODE	PART NAME
AE	2SB1424K
BR	2SC4617
L01	MPL1
5H	XP4501
64	DTC114YE
D9	UMD9N
C	1SS353SP

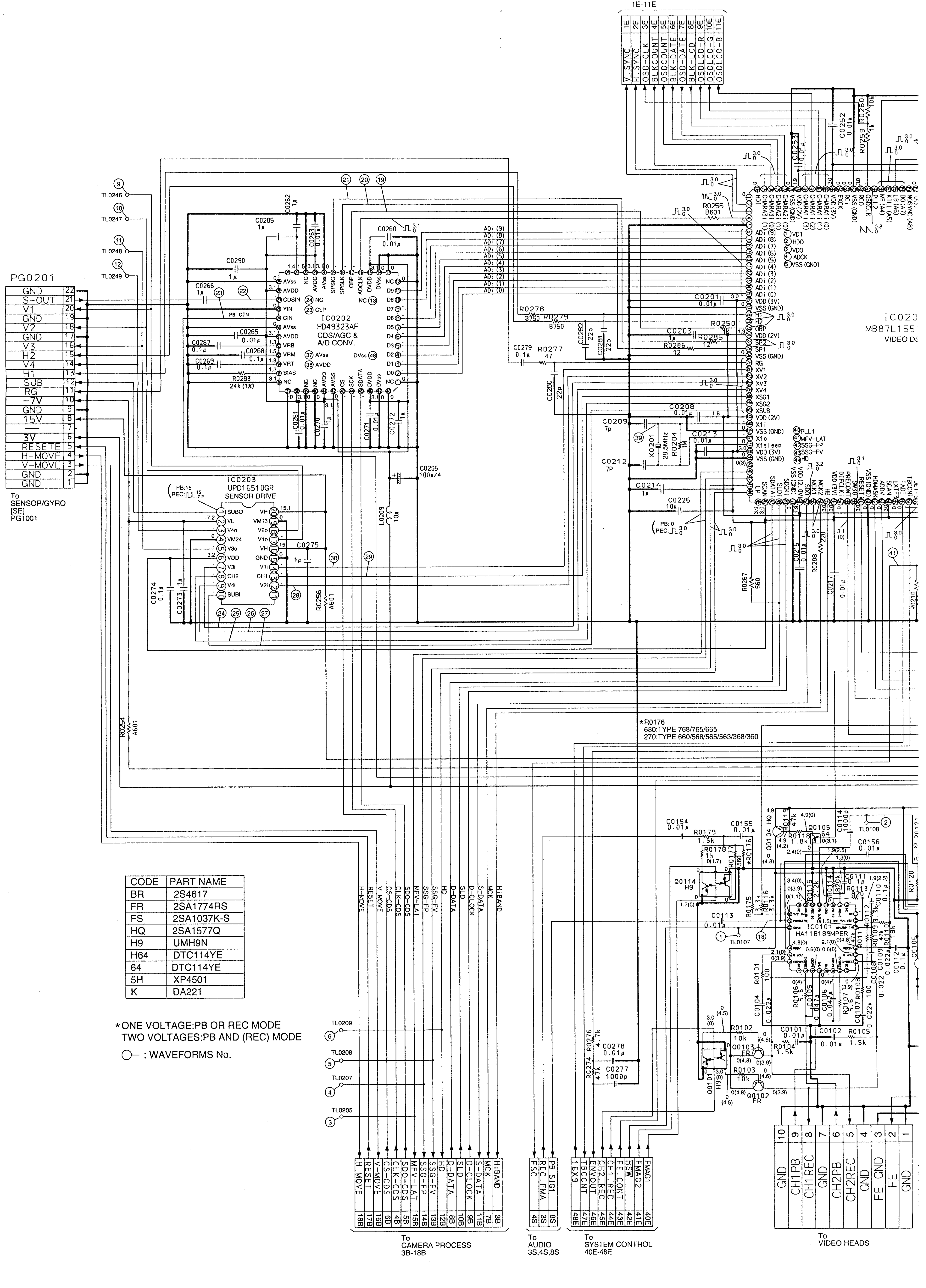
NOTE:VOLTAGE:PB OR REC MODE

REGULATOR [VCA]

VIDEO PROCESS WAVEFORMS

1-A TL107 3.2Vp-p 0.5V/5ms REC/PLAY	7-B TL216 1.1Vp-p 0.2V/20µs PLAY	13-A TL265 1.8Vp-p 0.5V/20µs REC	16-B TL352 4.0Vp-p 1V/20µs PLAY	22-A IC202-27 1.1Vp-p 0.2V/20µs REC	29-A IC203-13 3.0Vp-p 1V/5ms REC	34-A Q202-E 400mVp-p 0.1V/20µs REC	38-B Q352-B 2.1Vp-p 0.5V/20µs PLAY
							
2-B TL108 320mVp-p 0.2V/5ms PLAY	8-A TL232 1.2Vp-p 0.2V/20µs REC	13-B TL265 1.9Vp-p 0.5V/20µs PLAY	17-A TL353 3.8Vp-p 1V/20µs REC	23-B IC202-29 400mVp-p 0.2V/20µs PLAY	30-A IC203-14 3.0Vp-p 1V/20µs REC	35-A Q209-E 150mVp-p 50mV/20µs REC	39-A C209 240mVp-p 50mV/20µs REC/PLAY
							
3-A TL205 3.0Vp-p 1V/5ms REC	8-B TL232 1.0 Vp-p 0.2V/20µs PLAY	14-A TL280 1.1Vp-p 0.5V/20µs REC	17-B TL353 4.0Vp-p 1V/20µs PLAY	24-A IC203-7 3.0Vp-p 1V/20µs REC	31-A IC301-14 270mVp-p 0.1V/20µs REC	36-A Q350-B 2.1Vp-p 0.5V/20µs REC	40-B R156 1.5Vp-p 0.5V/5ms PLAY
							
4-A TL207 3.1Vp-p 1V/5ms REC	9-A TL246 7.5Vp-p 2V/20µs REC	14-B TL280 1.3Vp-p 0.5V/20µs PLAY	18-B IC101-27 200mVp-p 0.1V/5ms PLAY	25-A IC203-8 3.0 Vp-p 1V/5ms REC	31-B IC301-14 310mVp-p 0.1V/20µs PLAY	36-B Q350-B 2.1Vp-p 0.5V/20µs PLAY	41-A R210 430mVp-p 0.1V/20µs REC/PLAY
							
5-A TL208 3.0Vp-p 1V/5ms REC	10-A TL247 7.5Vp-p 2V/20µs REC	15-A TL351 3.8Vp-p 1V/20µs REC	19-A IC202-17 3.0Vp-p 1V/20µs REC	26-A IC203-9 3.0Vp-p 1V/20µs REC	32-A IC301-21 520mVp-p 0.1V/20µs REC	37-A Q351-B 2.1Vp-p 0.5V/20µs REC	
							
6-A TL209 3.0Vp-p 1V/20µs REC	11-A TL248 7.5Vp-p 2V/20µs REC	15-B TL351 4.0Vp-p 1V/20µs PLAY	20-A IC202-18 3.0Vp-p 1V/50ns REC	27-A IC203-10 3.0Vp-p 1V/20µs REC	32-B IC301-21 540mVp-p 0.1V/20µs PLAY	37-B Q351-B 2.1Vp-p 0.5V/20µs PLAY	
							
7-A TL216 1.0Vp-p 0.2V/20µs REC	12-A TL249 7.5Vp-p 2V/20µs REC	16-A TL352 3.8Vp-p 1V/20µs REC	21-A IC202-19 3.0Vp-p 1V/50ns REC	28-A IC203-12 3.0Vp-p 1V/20µs REC	33-B Q110-E 1.7Vp-p 1V/5ms PLAY	38-A Q352-B 2.1Vp-p 0.5V/20µs REC	
							

VIDEO PROCESS [VCA] SCHEMATIC DIAGRAM

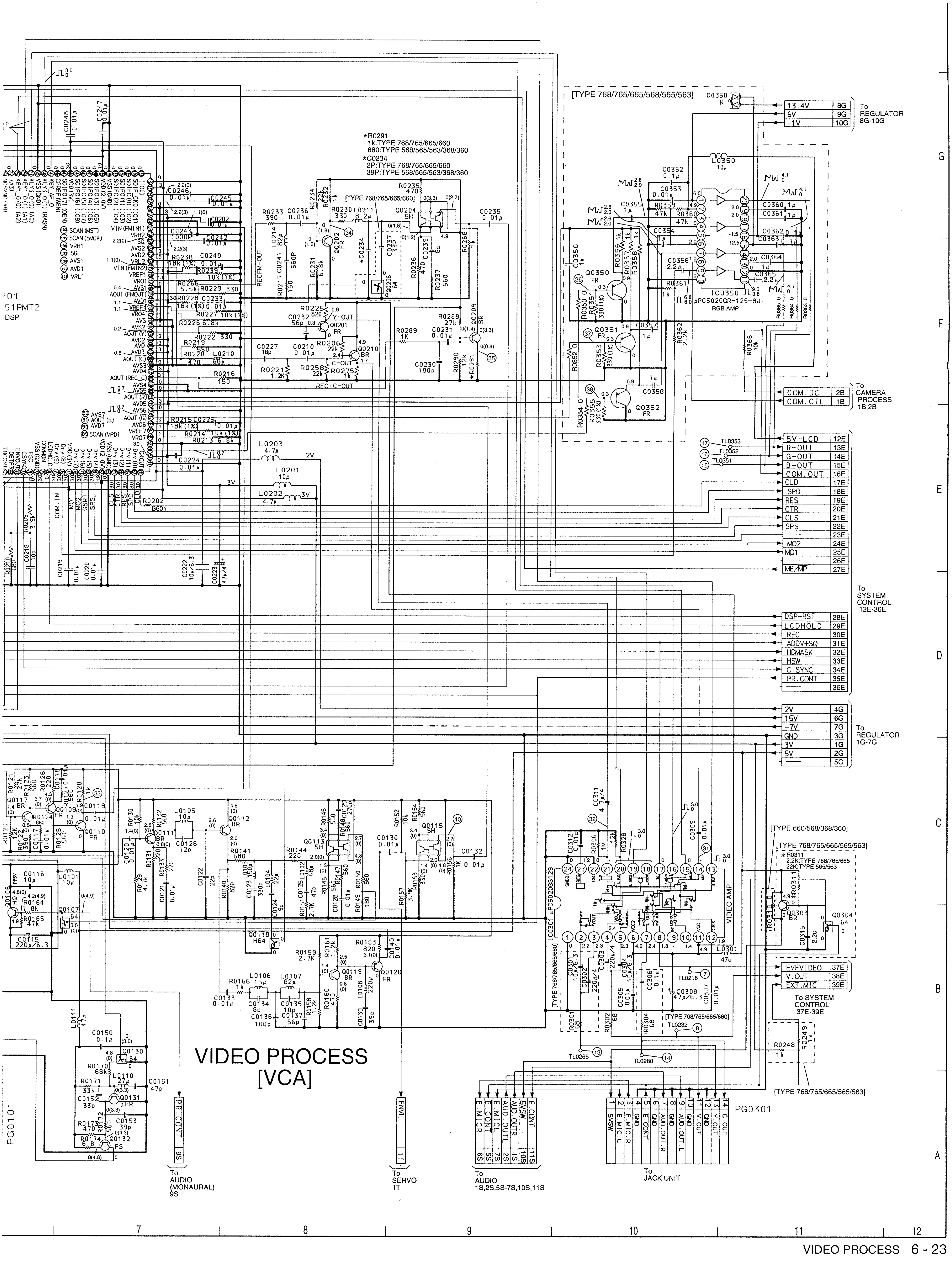


To SYSTEM CONTROL
1E-11E
V_SYNC 1E
H_SYNC 2E
OSD-CLK 3E
BLKCOUNT 4E
OSDCOUNT 5E
BLK-DATE 6E
OSD-DATE 7E
BLK-LCD 8E
OSDLCD-R 9E
OSDLCD-G 10E
OSDLCD-B 11E
PG0201
GND 22
S-OUT 21
V1 20
GND 19
V2 18
GND 17
V3 16
H2 15
V4 14
H1 13
SUB 12
RG 11
-7V 10
GND 9
15V 8
7
3V 6
RESETE 5
H-MOVE 4
V-MOVE 3
GND 2
GND 1
To
SENSOR/GYRO
[SE]
PG1001
TL0246
TL0247
TL0248
TL0249
IC0202
HD49323AF
CDS/AGC &
A/D CONV.
IC0203
UPD16510GR
SENSOR DRIVE
C0285
C0262
C0263
C0260
C0290
C0266
C0265
C0267
C0268
C0269
R0283
24k (1%)
C0261
C0270
C0271
C0272
C0205
100μ/4
L0209
10μ
C0275
C0274
C0273
R0256
A601
R0278
B750
R0279
B750
C0279
R0277
47
C0282
22p
C0281
22p
C0280
22p
C0201
C0203
R0286
R0250
R0285
R0255
B601
C0252
C0253
R0259
R0260
C0208
C0209
7p
X0201
28.5MHz
R0204
C0213
C0212
7P
C0214
C0226
10μ
C0215
R0208
220
C0217
R0267
560
R0210
IC020
MB87L155
VIDEO D
*R0176
680:TYPE 768/765/665
270:TYPE 660/568/565/563/368/360
R0254
A601
IC0101
HA11818 9MPER
Q0104
Q0105
Q0114
H9
Q0101
Q0102
Q0103
R0179
R0178
R0177
R0175
R0116
R0118
R0119
C0154
C0155
C0156
C0113
C0114
TL0108
TL0107
R0101
C0104
R0102
R0103
R0104
R0105
C0101
C0102
R0274
R0276
C0278
C0277
TL0209
TL0208
TL0207
TL0205
H-MOVE 18B
RESET 17B
V-MOVE 16B
CS-CDS 6B
CLK-CDS 4B
SDO-CDS 5B
MFV-LAT 15B
SSG-FP 14B
SSG-FV 13B
HD 12B
D-DATA 8B
SLD 10B
D-CLOCK 9B
S-DATA 11B
MCK 7B
HiBAND 3B
To
CAMERA PROCESS
3B-18B
FSC 4S
REC.FMA 3S
PB.SIG1 8S
To
AUDIO
3S,4S,8S
16X9 48E
TBCCNT 47E
ENVOUT 46E
CH2.REC 45E
CH1.REC 44E
FE.CONT 43E
HSW 42E
FMAG2 41E
FMAG1 40E
To
SYSTEM CONTROL
40E-48E
10 GND
9 CH1PB
8 CH1REC
7 GND
6 CH2PB
5 CH2REC
4 GND
3 FE GND
2 FE
1 GND
To
VIDEO HEADS
1
2
3
4
5
6

CODE	PART NAME
BR	2S4617
FR	2SA1774RS
FS	2SA1037K-S
HQ	2SA1577Q
H9	UMH9N
H64	DTC114YE
64	DTC114YE
5H	XP4501
K	DA221

*ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE

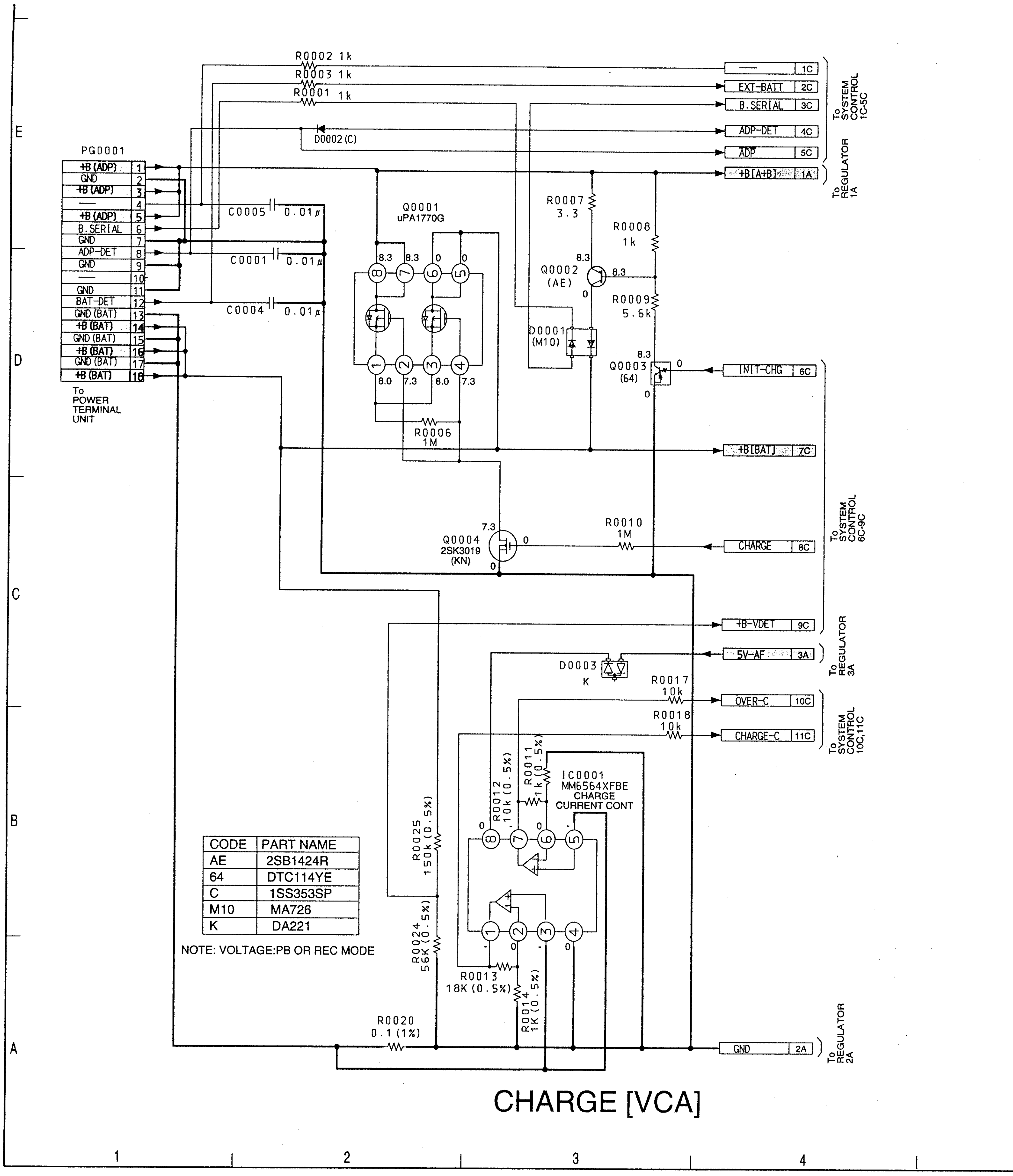
○— : WAVEFORMS No.



[TYPE 768/765/665/568/565/563]
D0350
13.4V 8G
6V 9G
-1V 10G
To REGULATOR 8G-10G
*R0291
1k:TYPE 768/765/665/660
680:TYPE 568/565/563/368/360
*C0234
2P:TYPE 768/765/665/660
39P:TYPE 568/565/563/368/360
[TYPE 768/765/665/660]
L0350 10µ
IC0350 µPC5020GR-125-8J
RGB AMP
Q0350 FR
Q0351 FR
Q0352 FR
Q0201 FR
Q0202 FR
Q0204 5H
Q0206 64
Q0209 BR
Q0210 BR
Y-OUT
C-OUT
REC·C-OUT
RECFM-OUT
COM.DC 2B
COM.CTL 1B
To CAMERA PROCESS 1B,2B
5V-LCD 12E
R-OUT 13E
G-OUT 14E
B-OUT 15E
COM.OUT 16E
CLD 17E
SPD 18E
RES 19E
CTR 20E
CLS 21E
SPS 22E
23E
MO2 24E
MO1 25E
26E
ME/MP 27E
To SYSTEM CONTROL 12E-36E
DSP-RST 28E
LCDHOLD 29E
REC 30E
ADDV+SQ 31E
HDMASK 32E
HSW 33E
C.SYNC 34E
PR.CONT 35E
36E
2V 4G
15V 6G
-7V 7G
GND 3G
3V 1G
5V 2G
5G
To REGULATOR 1G-7G
TL0353
TL0352
TL0351
201
51PMT2
DSP
L0203 4.7µ
L0201 10µ
L0202 4.7µ
2V
3V
COM.IN
B601
[TYPE 660/568/368/360]
[TYPE 768/765/665/565/563]
*R0311
2.2K:TYPE 768/765/665
22K:TYPE 565/563
Q0303 BR
Q0304 64
EVFVIDEO 37E
V.OUT 38E
EXT.MIC 39E
To SYSTEM CONTROL 37E-39E
IC0301 µPC5020GS129
VIDEO AMP
L0301 47u
TL0216
TL0232
TL0265
TL0280
[TYPE 768/765/665/660]
R0248 1k
R0249 1k
PG0301
1 5VSW
2 E.MIC.L
3 E.MIC.R
4 GND
5 E.CONT
6 GND
7 AUD.OUT.R
8 GND
9 AUD.OUT.L
10 GND
11 V.OUT
12 GND
13 Y.OUT
14 C.OUT
To JACK UNIT
E.MIC.R 6S
E.CONT 5S
E.MIC.L 7S
AUD.OUTL 2S
AUD.OUTR 1S
5VSW 10S
E.CONT 11S
To AUDIO 1S,2S,5S-7S,10S,11S
ENVL 1T
To SERVO 1T
PR.CONT 9S
To AUDIO (MONAURAL) 9S
PG0101
Q0106 HQ
Q0107 64
Q0109 FR
Q0110 FR
Q0111 BR
Q0112 BR
Q0113 5H
Q0115 5H
Q0117 BR
Q0118 H64
Q0119 BR
Q0120 FR
Q0130 64
Q0131 FR
Q0132 FS
L0101 10µ
L0105 10µ
L0106 15µ
L0107 82µ
L0108 220µ
L0110 27µ
L0111 47µ
G
F
E
D
C
B
A
7
8
9
10
11
12

VIDEO PROCESS
[VCA]

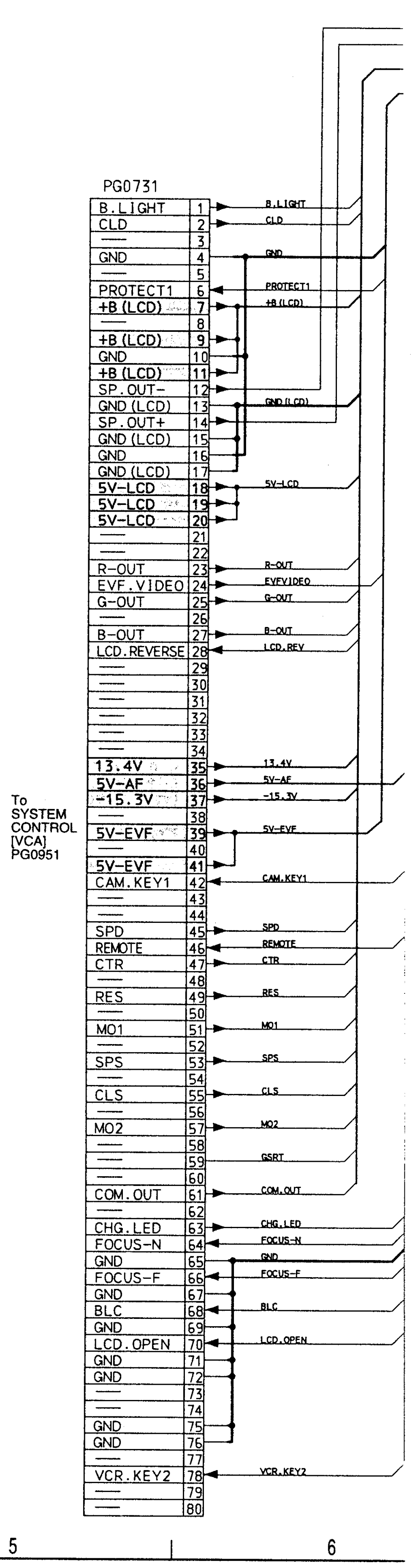
CHARGE [VCA] SCHEMATIC DIAGRAM


PG0001
+B (ADP)
GND
+B (ADP)
—
+B (ADP)
B.SERIAL
GND
ADP-DET
GND
—
GND
BAT-DET
GND (BAT)
+B (BAT)
GND (BAT)
+B (BAT)
GND (BAT)
+B (BAT)
To POWER TERMINAL UNIT
R0002 1k
R0003 1k
R0001 1k
D0002 (C)
C0005 0.01μ
C0001 0.01μ
C0004 0.01μ
Q0001 uPA1770G
8.3
8.3
0
0
8.0
7.3
8.0
7.3
R0006 1M
R0007 3.3
Q0002 (AE)
8.3
0
R0008 1k
R0009 5.6k
D0001 (M10)
8.3
Q0003 (64)
0
0
Q0004 2SK3019 (KN)
7.3
0
0
R0010 1M
—
1C
EXT-BATT
2C
B.SERIAL
3C
ADP-DET
4C
ADP
5C
To SYSTEM CONTROL 1C-5C
+B[A+B]
1A
To REGULATOR 1A
INIT-CHG
6C
+B[BAT]
7C
CHARGE
8C
+B-VDET
9C
To SYSTEM CONTROL 6C-9C
5V-AF
3A
To REGULATOR 3A
D0003 K
R0017 10k
OVER-C
10C
R0018 10k
CHARGE-C
11C
To SYSTEM CONTROL 10C,11C
IC0001 MM6564XFBE CHARGE CURRENT CONT
R0011 1k (0.5%)
R0012 10k (0.5%)
R0025 150k (0.5%)
R0024 56K (0.5%)
R0013 18K (0.5%)
R0014 1K (0.5%)
R0020 0.1 (1%)
GND
2A
To REGULATOR 2A
CHARGE [VCA]
1
2
3
4

CODE	PART NAME
AE	2SB1424R
64	DTC114YE
C	1SS353SP
M10	MA726
K	DA221

NOTE: VOLTAGE:PB OR REC MODE

CONTROL [CON] SCH


PG0731
B.LIGHT
CLD
—
GND
—
PROTECT1
+B (LCD)
—
+B (LCD)
GND
+B (LCD)
SP.OUT-
GND (LCD)
SP.OUT+
GND (LCD)
GND
GND (LCD)
5V-LCD
5V-LCD
5V-LCD
R-OUT
EVF.VIDEO
G-OUT
B-OUT
LCD.REVERSE
13.4V
5V-AF
-15.3V
5V-EVF
5V-EVF
CAM.KEY1
SPD
REMOTE
CTR
RES
MO1
SPS
CLS
MO2
COM.OUT
CHG.LED
FOCUS-N
GND
FOCUS-F
GND
BLC
GND
LCD.OPEN
GND
GND
GND
GND
VCR.KEY2
To SYSTEM CONTROL [VCA] PG0951
5
6

DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (⁎) in the circuit board diagrams.

VCA [MAIN] -SIDE B-

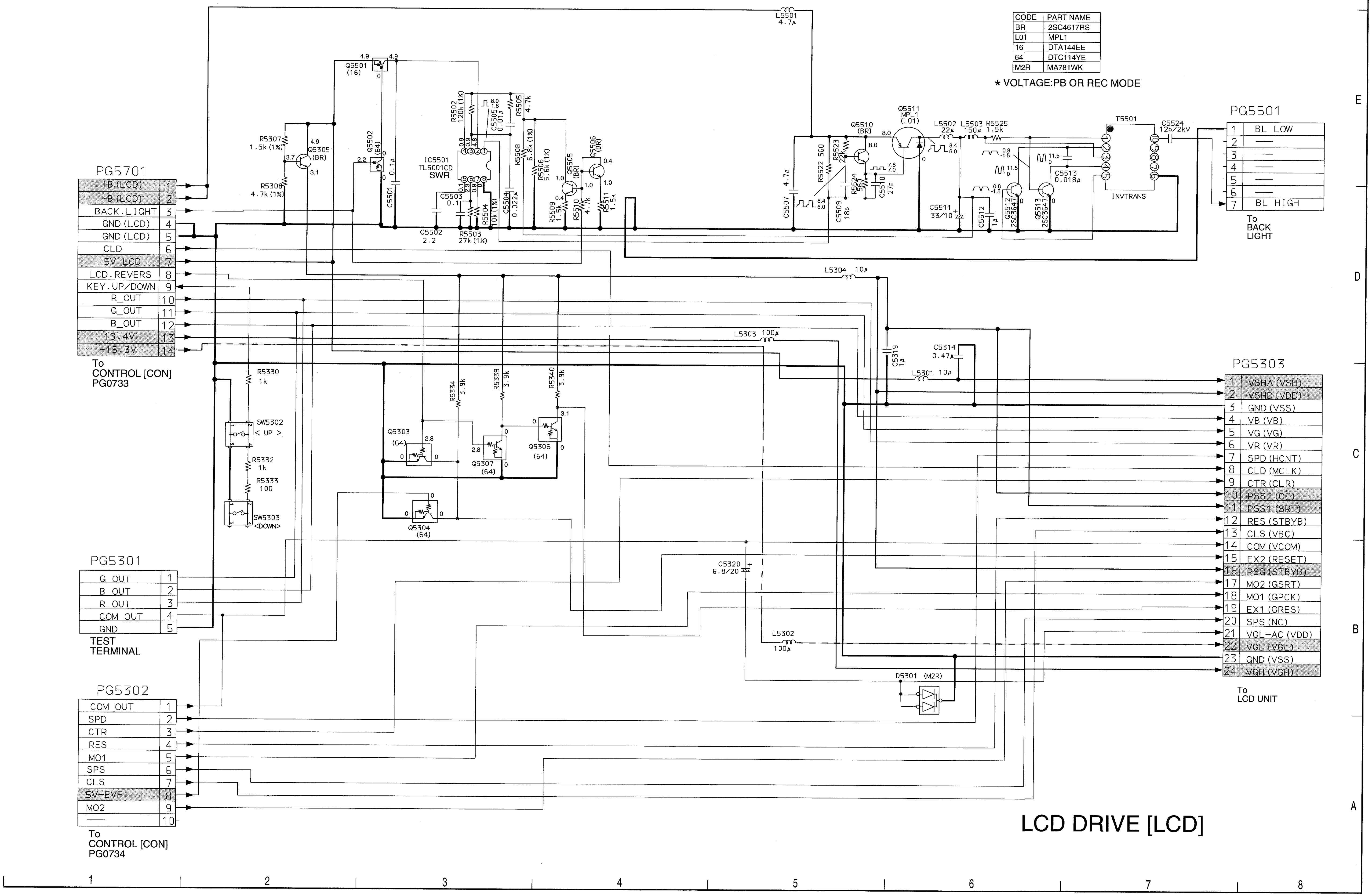
SYMBOL No.	TYPE 768	TYPE 765	TYPE 665	TYPE 660	TYPE 568	TYPE 565	TYPE 563	TYPE 368/360
C0237	○	○	○	○	×	×	×	×
C0301	○	○	○	○	×	×	×	×
C0306	○	○	○	○	×	×	×	×
C0315	○	○	○	×	×	○	○	×
C0405L	×	○	○	×	×	×	×	×
C0405R	×	○	○	×	×	×	×	×
C0406L	×	○	○	×	×	×	×	×
C0406R	×	○	○	×	×	×	×	×
C0407M	○	×	×	○	○	○	○	○
C0408L	×	○	○	×	×	×	×	×
C0408R	×	○	○	×	×	×	×	×
C0409M	○	×	×	○	○	○	○	○
C0410M	○	×	×	○	○	○	○	○
C0411L	×	○	○	×	×	×	×	×
C0411R	×	○	○	×	×	×	×	×
C0412L	×	○	○	×	×	×	×	×
C0412R	×	○	○	×	×	×	×	×
C0413M	○	×	×	○	○	○	○	○
C0416R	×	○	○	×	×	×	×	×
C0417L	×	○	○	×	×	×	×	×
C0417R	×	○	○	×	×	×	×	×
C0418M	○	×	×	○	○	○	○	○
C0419R	×	○	○	×	×	×	×	×
C0421L	×	○	○	×	×	×	×	×
C0421R	×	○	○	×	×	×	×	×
C0422M	○	×	×	○	○	○	○	○
C0423L	×	○	○	×	×	×	×	×
C0424M	○	×	×	○	○	○	○	○
C0425R	×	○	○	×	×	×	×	×
C0427S	×	○	○	×	×	×	×	×
C0428M	○	×	×	○	○	○	○	○
C0429M	○	×	×	○	○	○	○	○
C0430S	×	○	○	×	×	×	×	×
C0431M	○	×	×	○	○	○	○	○
C0431S	×	○	○	×	×	×	×	×
C0433L	×	○	○	×	×	×	×	×
C0433R	×	○	○	×	×	×	×	×
C0435M	○	×	×	○	○	○	○	○
C0437S	×	○	○	×	×	×	×	×
C0438M	○	×	×	○	○	○	○	○
C0439M	○	×	×	○	○	○	○	○
C0440M	○	×	×	○	○	○	○	○
C0441M	○	×	×	○	○	○	○	○
C0442M	○	×	×	○	○	○	○	○
C0446M	○	×	×	○	○	○	○	○
C0447M	○	×	×	×	○	○	○	×
C0448L	×	○	○	×	×	×	×	×
C0448R	×	○	○	×	×	×	×	×
C0449M	○	×	×	○	○	○	○	○
C0452S	×	○	○	×	×	×	×	×
C0453S	×	○	○	×	×	×	×	×
C0454M	○	×	×	○	○	○	○	○
C0455M	○	×	×	○	○	○	○	○
C0463	○	○	○	×	○	○	○	×
C0464S	×	○	○	×	×	×	×	×
C0471R	×	○	○	×	×	×	×	×
C0472R	×	○	○	×	×	×	×	×
C0473R	×	○	○	×	×	×	×	×
C0474L	×	○	○	×	×	×	×	×
C0474R	×	○	○	×	×	×	×	×
C0475L	×	○	○	×	×	×	×	×
C0475R	×	○	○	×	×	×	×	×
C0476L	×	○	○	×	×	×	×	×
C0476R	×	○	○	×	×	×	×	×
C0477L	×	○	○	×	×	×	×	×
C0477R	×	○	○	×	×	×	×	×
C0478L	×	○	○	×	×	×	×	×
C0478R	×	○	○	×	×	×	×	×
C0480S	×	○	○	×	×	×	×	×
C0482L	×	○	○	×	×	×	×	×
C0482R	×	○	○	×	×	×	×	×
C0483	○	○	○	×	×	○	○	×
C0483R	×	○	○	×	×	×	×	×
C0484L	×	○	○	×	×	×	×	×
C0484R	×	○	○	×	×	×	×	×
C0489	○	○	○	×	×	○	○	×

SYMBOL No.	TYPE 768	TYPE 765	TYPE 665	TYPE 660	TYPE 568	TYPE 565	TYPE 563	TYPE 368/360
C0489R	○	○	○	×	×	○	○	×
C0542	○	○	○	×	○	○	○	×
C0544	○	○	○	×	○	○	○	×
C0588	○	○	○	×	○	○	○	×
C0589	○	○	○	×	○	○	○	×
C0591	○	○	○	×	○	○	○	×
C0592	○	○	○	×	○	○	○	×
C0594	○	○	○	×	○	○	○	×
C0596	○	○	○	×	○	○	○	×
C0597	○	○	○	×	○	○	○	×
C0598	○	○	○	×	○	○	○	×
C1167	○	○	○	○	×	○	×	×
C1168	○	○	○	○	×	○	×	×
D0553	○	○	○	×	○	○	○	×
D0554	○	○	○	×	○	○	○	×
D0555	○	○	○	×	○	○	○	×
D0557	○	○	○	×	○	○	○	×
D1101	○	○	×	×	×	×	×	×
F0553	○	○	○	×	○	○	○	×
IC0471S	×	○	○	×	×	×	×	×
L0350	○	○	○	×	○	○	○	×
L0402M	○	×	×	○	○	○	○	○
L0560	○	○	○	×	○	○	○	×
L0566	○	○	○	×	○	○	○	×
L0567	○	○	○	×	○	○	○	×
L0569	○	○	○	×	○	○	○	×
PG0552	○	○	×	×	×	×	×	×
Q0206	○	○	○	○	×	×	×	×
Q0303	○	○	○	×	×	○	○	×
Q0304	○	○	○	×	×	○	○	×
Q0401R	×	○	○	×	×	×	×	×
Q0402M	○	×	×	○	○	○	○	○
Q0403M	○	×	×	×	×	○	○	×
Q0404M	○	×	×	×	×	○	○	×
Q0406	○	○	○	×	×	○	○	×
Q0406R	×	○	○	×	×	×	×	×
Q0407M	○	×	×	○	○	○	○	○
Q0463S	×	○	○	×	×	×	×	×
Q0471R	×	○	○	×	×	×	×	×
Q0475S	×	○	○	×	×	×	×	×
Q0552	○	○	○	×	○	○	○	×
Q0555	○	○	○	×	○	○	○	×
Q0556	○	○	○	×	○	○	○	×
Q0563	○	○	○	×	○	○	○	×
Q0570	○	○	×	×	×	×	×	×
Q0571	○	○	×	×	×	×	×	×
Q0572	○	○	○	×	○	○	○	×
Q0573	○	○	○	×	○	○	○	×
Q0574	○	○	○	×	○	○	○	×
Q0575	○	○	○	×	○	○	○	×
Q0577	○	○	○	×	○	○	○	×
Q0578	○	○	○	×	○	○	○	×
Q0579	○	○	○	×	○	○	○	×
Q0580	○	○	○	×	○	○	○	×
R0248	○	○	○	×	×	○	○	×
R0249	○	○	○	×	×	○	○	×
R0301	○	○	○	○	×	×	×	×
R0304	○	○	○	○	×	×	×	×
R0310	×	×	×	JUMPER	JUMPER	×	×	JUMPER
R0311	○	○	○	×	×	○	○	×
R0401M	○	×	×	○	○	○	○	○
R0404M	○	×	×	○	○	○	○	○
R0405L	×	○	○	×	×	×	×	×
R0405R	×	○	○	×	×	×	×	×
R0406M	○	×	×	○	○	○	○	○
R0407M	○	×	×	○	○	○	○	○
R0408L	×	JUMPER	JUMPER	×	×	×	×	×
R0408R	×	JUMPER	JUMPER	×	×	×	×	×
R0411M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0414M	○	×	×	○	○	○	○	○
R0415M	○	×	×	○	○	○	○	○
R0416M	○	×	×	○	○	○	○	○
R0417S	×	JUMPER	JUMPER	×	×	×	×	×
R0418S	×	JUMPER	JUMPER	×	×	×	×	×
R0419M	○	×	×	○	○	○	○	○
R0424M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER

SYMBOL No.	TYPE 768	TYPE 765	TYPE 665	TYPE 660	TYPE 568	TYPE 565	TYPE 563	TYPE 368/360
R0425M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0426	○	JUMPER	JUMPER	○	○	○	○	○
R0427S	×	JUMPER	JUMPER	×	×	×	×	×
R0429M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0429S	×	JUMPER	JUMPER	×	×	×	×	×
R0430M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0431S	×	○	○	×	×	×	×	×
R0432S	×	○	○	×	×	×	×	×
R0433M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0433S	×	JUMPER	JUMPER	×	×	×	×	×
R0434M	○	×	×	○	○	○	○	○
R0435S	×	○	○	×	×	×	×	×
R0436M	○	×	×	○	○	○	○	○
R0437M	○	×	×	○	○	○	○	○
R0437S	×	JUMPER	JUMPER	×	×	×	×	×
R0438S	×	JUMPER	JUMPER	×	×	×	×	×
R0440M	○	×	×	○	○	○	○	○
R0441M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0441S	×	JUMPER	JUMPER	×	×	×	×	×
R0443M	○	×	×	○	○	○	○	○
R0444M	○	×	×	○	○	○	○	○
R0445M	○	×	×	○	○	○	○	○
R0446S	×	○	○	×	×	×	×	×
R0447M	○	×	×	○	○	○	○	○
R0447S	×	○	○	×	×	×	×	×
R0448S	×	○	○	×	×	×	×	×
R0449	○	○	○	×	○	○	○	×
R0451M	○	×	×	×	×	○	○	×
R0452M	○	×	×	×	×	○	○	×
R0453M	○	×	×	○	○	○	○	○
R0454M	○	×	×	○	○	○	○	○
R0457L	×	○	○	×	×	×	×	×
R0457R	×	○	○	×	×	×	×	×
R0458R	×	○	○	×	×	×	×	×
R0463S	×	○	○	×	×	×	×	×
R0464S	×	○	○	×	×	×	×	×
R0465M	JUMPER	×	×	×	JUMPER	JUMPER	JUMPER	×
R0466M	JUMPER	×	×	×	JUMPER	JUMPER	JUMPER	×
R0468S	×	○	○	×	×	×	×	×
R0470M	○	×	×	○	○	○	○	○
R0471R	×	○	○	×	×	×	×	×
R0472	JUMPER	○	○	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0472R	×	○	○	×	×	×	×	×
R0473R	×	○	○	×	×	×	×	×
R0474R	×	○	○	×	×	×	×	×
R0475L	×	○	○	×	×	×	×	×
R0475R	×	○	○	×	×	×	×	×
R0476L	×	○	○	×	×	×	×	×
R0476R	×	○	○	×	×	×	×	×
R0477L	×	○	○	×	×	×	×	×
R0477R	×	○	○	×	×	×	×	×
R0478L	×	○	○	×	×	×	×	×
R0478R	×	○	○	×	×	×	×	×
R0479L	×	○	○	×	×	×	×	×
R0479R	×	○	○	×	×	×	×	×
R0480L	×	○	○	×	×	×	×	×
R0480R	×	○	○	×	×	×	×	×
R0481L	×	○	○	×	×	×	×	×
R0481R	×	○	○	×	×	×	×	×
R0482L	×	○	○	×	×	×	×	×
R0482R	×	○	○	×	×	×	×	×
R0483L	×	○	○	×	×	×	×	×
R0483R	×	○	○	×	×	×	×	×
R0484S	×	○	○	×	×	×	×	×
R0485S	×	○	○	×	×	×	×	×
R0488L	×	JUMPER	JUMPER	×	×	×	×	×
R0488R	×	JUMPER	JUMPER	×	×	×	×	×
R0494	○	○	○	×	×	○	○	×
R0494R	×	○	○	×	×	×	×	×
R0495	○	○	○	×	×	○	○	×
R0495R	×	○	○	×	×	×	×	×
R0497	JUMPER	JUMPER	JUMPER	×	×	JUMPER	JUMPER	×
R0497R	JUMPER	JUMPER	JUMPER	×	×	JUMPER	JUMPER	×
R0498M	JUMPER	×	×	×	×	JUMPER	JUMPER	×
R0499	○	○	○	×	×	○	○	×
R0499R	×	○	○	×	×	×	×	×

SYMBOL No.	TYPE 768	TYPE 765	TYPE 665	TYPE 660	TYPE 568	TYPE 565	TYPE 563	TYPE 368/360
R0533	○	○	○	×	○	○	○	×
R0534	○	○	○	×	○	○	○	×
R0545	○	○	○	×	○	○	○	×
R0546	○	○	○	×	○	○	○	×
R0553	○	○	○	×	○	○	○	×
R0554	○	○	○	×	○	○	○	×
R0596	×	×	×	JUMPER	×	×	×	JUMPER
R0597	○	○	×	×	×	×	×	×
R0598	○	○	×	×	×	×	×	×
R0599	○	○	×	×	×	×	×	×
R1123	○	○	×	×	×	×	×	×
R1124	○	○	×	×	×	×	×	×
R1125	○	○	×	×	×	×	×	×
R1168	×	×	×	×	JUMPER	×	JUMPER	JUMPER
R1169	×	×	×	×	JUMPER	×	JUMPER	JUMPER
R1170	○	○	○	○	×	○	×	×
R1171	○	○	○	○	×	○	×	×

LCD DRIVE [LCD] SCHEMATIC DIAGRAM



PG5701
+B (LCD) 1
+B (LCD) 2
BACK.LIGHT 3
GND (LCD) 4
GND (LCD) 5
CLD 6
5V LCD 7
LCD.REVERS 8
KEY.UP/DOWN 9
R_OUT 10
G_OUT 11
B_OUT 12
13.4V 13
-15.3V 14
To CONTROL [CON] PG0733
PG5301
G OUT 1
B OUT 2
R OUT 3
COM OUT 4
GND 5
TEST TERMINAL
PG5302
COM_OUT 1
SPD 2
CTR 3
RES 4
MO1 5
SPS 6
CLS 7
5V-EVF 8
MO2 9
— 10
To CONTROL [CON] PG0734
PG5501
1 BL LOW
2 —
3 —
4 —
5 —
6 —
7 BL HIGH
To BACK LIGHT
PG5303
1 VSHA (VSH)
2 VSHD (VDD)
3 GND (VSS)
4 VB (VB)
5 VG (VG)
6 VR (VR)
7 SPD (HCNT)
8 CLD (MCLK)
9 CTR (CLR)
10 PSS2 (OE)
11 PSS1 (SRT)
12 RES (STBYB)
13 CLS (VBC)
14 COM (VCOM)
15 EX2 (RESET)
16 PSG (STBYB)
17 MO2 (GSRT)
18 MO1 (GPCK)
19 EX1 (GRES)
20 SPS (NC)
21 VGL-AC (VDD)
22 VGL (VGL)
23 GND (VSS)
24 VGH (VGH)
To LCD UNIT
L5501 4.7µ
Q5501 (16)
Q5502 (64)
Q5305 (BR)
R5307 1.5k (1%)
R5308 4.7k (1%)
C5501 0.1µ
IC5501 TL5001CD SWR
R5502 120k (1%)
C5505 0.01µ
R5505 4.7k
C5503 0.1
C5502 2.2
R5503 27k (1%)
R5504 10k (1%)
C5504 0.022µ
R5508 6.8k (1%)
R5506 5.6k (1%)
Q5505 (BR)
Q5506 (BR)
R5509 1.5k
R5510 4.7k
R5511 1.5k
Q5510 (BR)
Q5511 MPL1 (L01)
L5502 22µ
L5503 150µ
R5525 1.5k
T5501
INVTRANS
C5524 12p/2kV
C5507 4.7µ
R5522 560
R5523 22k
R5524 56k
C5509 18p
C5510 27p
C5511 33/10
C5512 1µ
Q5512 2SC3647
Q5513 2SC3647
C5513 0.018µ
L5304 10µ
L5303 100µ
C5319 1µ
C5314 0.47µ
L5301 10µ
R5330 1k
SW5302 < UP >
R5332 1k
R5333 100
SW5303 <DOWN>
R5334 3.9k
R5339 3.9k
R5340 3.9k
Q5303 (64)
Q5307 (64)
Q5306 (64)
Q5304 (64)
C5320 6.8/20
L5302 100µ
D5301 (M2R)
1 2 3 4 5 6 7 8
A B C D E

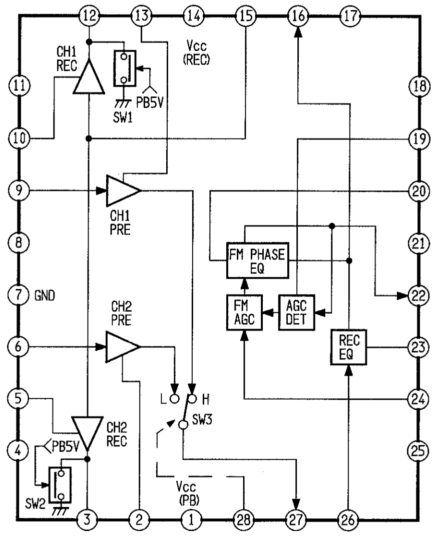
CODE	PART NAME
BR	2SC4617RS
L01	MPL1
16	DTA144EE
64	DTC114YE
M2R	MA781WK

* VOLTAGE:PB OR REC MODE

LCD DRIVE [LCD]

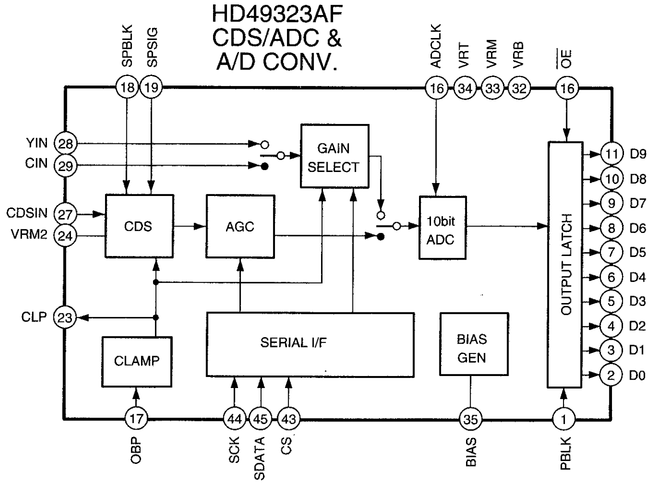
IC BLOCK DIAGRAMS

IC0101
HA118189MPER
VIDEO HEAD AMP



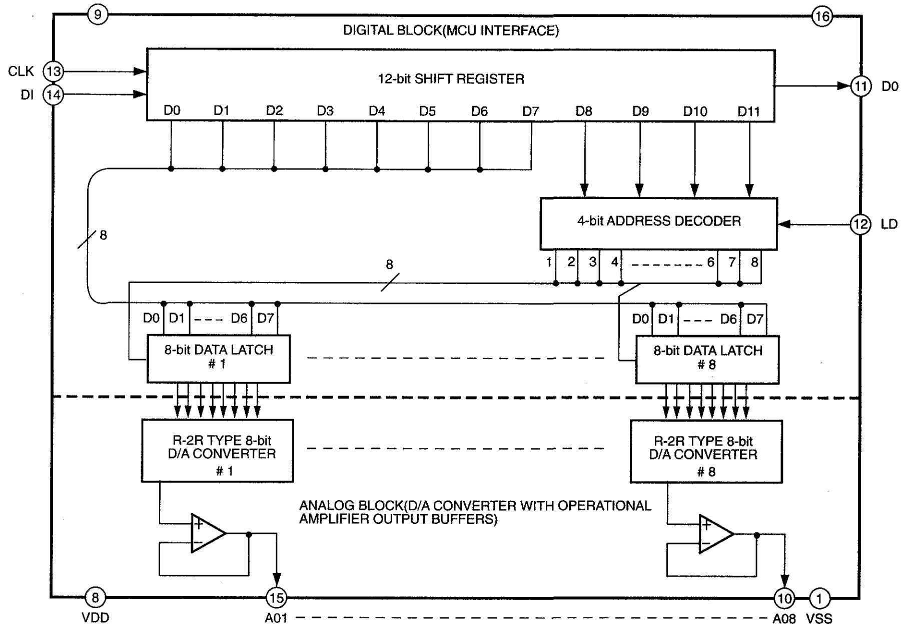
CH1 REC
PB5V
SW1
Vcc (REC)
CH1 PRE
GND
FM PHASE EQ
FM AGC
AGC DET
CH2 PRE
REC EQ
L
H
SW3
CH2 REC
PB5V
SW2
Vcc (PB)

IC0202
HD49323AF
CDS/ADC &
A/D CONV.



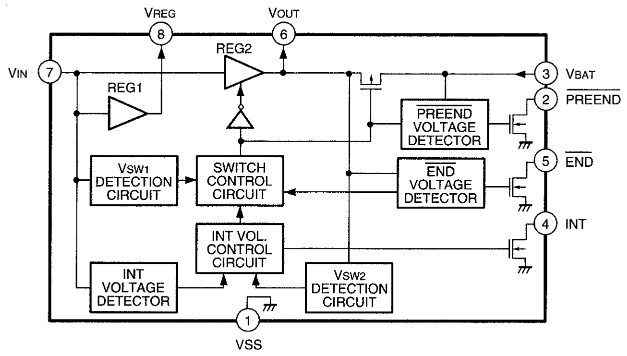
SPBLK
SPSIG
ADCLK
VRT
VRM
VRB
OE
YIN
CIN
CDSIN
VRM2
CLP
GAIN SELECT
CDS
AGC
10bit ADC
OUTPUT LATCH
CLAMP
SERIAL I/F
BIAS GEN
D9
D8
D7
D6
D5
D4
D3
D2
D1
D0
OBP
SCK
SDATA
CS
BIAS
PBLK

IC1111
MB88347PFV
D/A CONV.



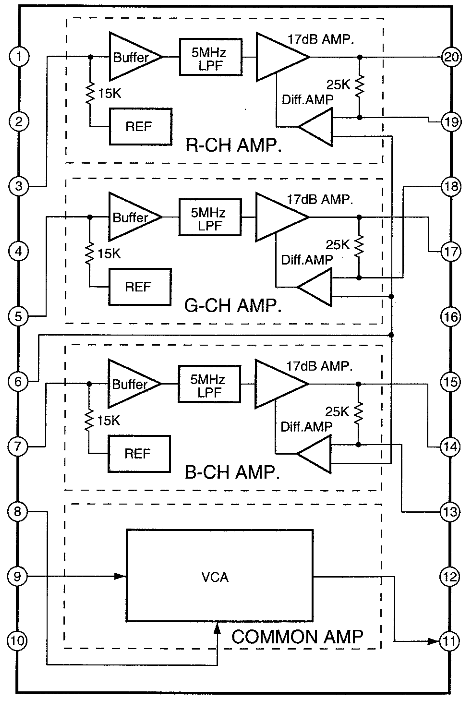
VCC
GND
DIGITAL BLOCK(MCU INTERFACE)
CLK
DI
12-bit SHIFT REGISTER
D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11
D0
4-bit ADDRESS DECODER
LD
8
1 2 3 4 6 7 8
D0 D1 D6 D7
8-bit DATA LATCH #1
8-bit DATA LATCH #8
R-2R TYPE 8-bit D/A CONVERTER #1
R-2R TYPE 8-bit D/A CONVERTER #8
ANALOG BLOCK(D/A CONVERTER WITH OPERATIONAL AMPLIFIER OUTPUT BUFFERS)
VDD
A01
A08
VSS

IC0902
NJU7285BV
BACK-UP DET



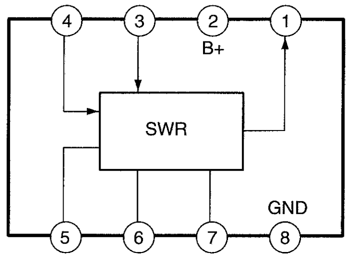
VREG
VOUT
VIN
REG2
REG1
VBAT
PREEND
PREEND VOLTAGE DETECTOR
VSW1 DETECTION CIRCUIT
SWITCH CONTROL CIRCUIT
END VOLTAGE DETECTOR
END
INT VOL. CONTROL CIRCUIT
INT
INT VOLTAGE DETECTOR
VSW2 DETECTION CIRCUIT
VSS

IC0350
µPC5020GR-125-8J
RGB AMP

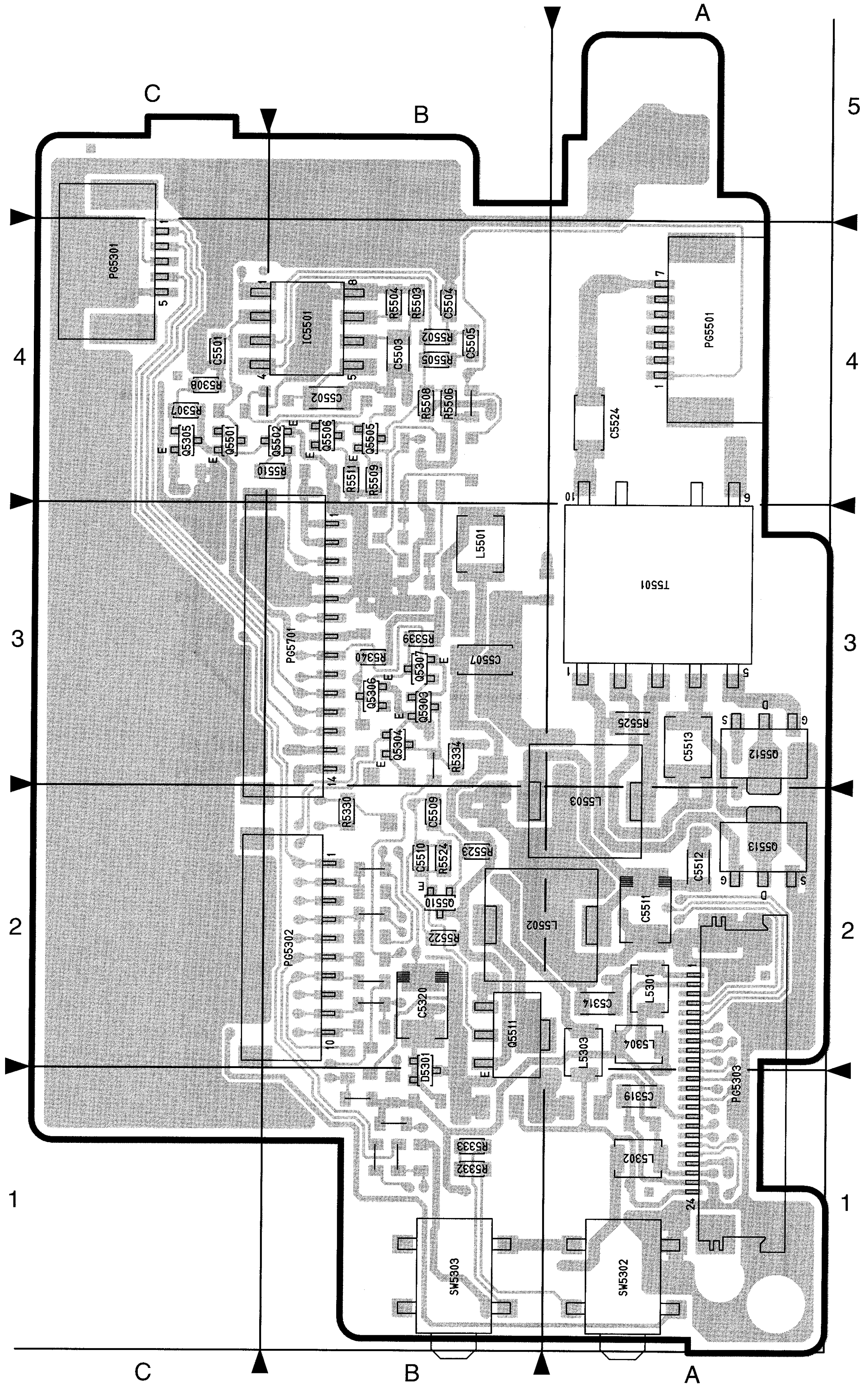


Buffer
5MHz LPF
17dB AMP.
15K
25K
Diff.AMP
REF
R-CH AMP.
G-CH AMP.
B-CH AMP.
VCA
COMMON AMP

IC5501
TL5001CD
SWR



LCD CIRCUIT BOARD DIAGRAM


A
B
C
1
2
3
4
5
PG5301
IC5501
PG5501
C5524
T5501
L5501
PG5701
L5503
L5502
Q5512
Q5513
C5513
C5512
C5511
Q5510
PG5302
PG5303
C5320
D5301
Q5511
L5303
L5304
L5301
L5302
C5314
C5319
R5333
R5332
SW5303
SW5302
R5525
R5523
R5522
R5524
C5510
C5509
R5330
R5334
R5339
R5340
Q5307
Q5306
Q5308
Q5304
C5507
Q5501
Q5502
Q5505
Q5506
Q5305
R5307
R5308
C5501
C5502
C5503
R5502
R5505
C5505
R5504
R5503
C5504
R5508
R5506
R5509
R5510
R5511

LCD [PATTERN No.JA1754-5]

DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

SE [SENSOR/GYRO] -SIDE A-

SYMBOL No.	TYPE 768/765/665/ 660/565	TYPE 568/563/ 368/360
C1405	○	×
C1406	○	×
C1411	○	×
C1412	○	×
C1417	○	×
R1401	JUMPER	×
R1418	JUMPER	×

SE [SENSOR/GYRO] -SIDE B-

SYMBOL No.	TYPE 768/765/665/ 660/565	TYPE 568/563/ 368/360
C1403	○	×
C1404	○	×
C1407	○	×
C1408	○	×
C1409	○	×
C1410	○	×
C1413	○	×
C1414	○	×
C1415	○	×
IC1401	○	×
IC1402	○	×
IC1403	○	×
Q1401	○	×
Q1402	○	×
R1403	○	×
R1404	○	×
R1405	○	×
R1406	○	×
R1407	○	×
R1408	○	×
R1409	○	×
R1410	○	×
R1411	○	×
R1412	○	×
R1413	○	×
R1414	○	×
R1416	○	×
R1424	○	×
R1425	○	×

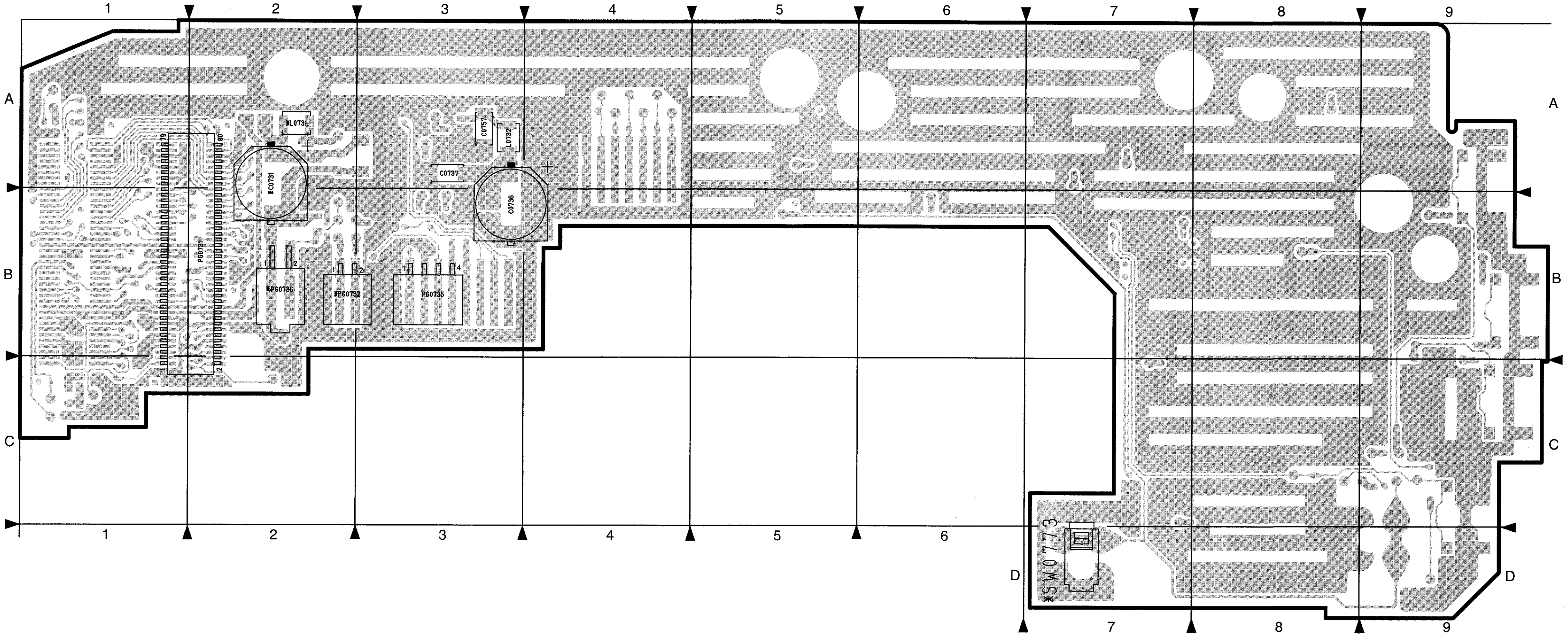
CON [CONTROL] -SIDE A-

SYMBOL No.	TYPE 768/765/665	TYPE 660	TYPE 565/563	TYPE 568	TYPE 368/360
C0731	○	×	○	○	×
L0731	○	×	○	○	×
PG0732	○	×	○	○	×
PG0736	○	×	○	○	×
SW0773	○	×	○	○	×

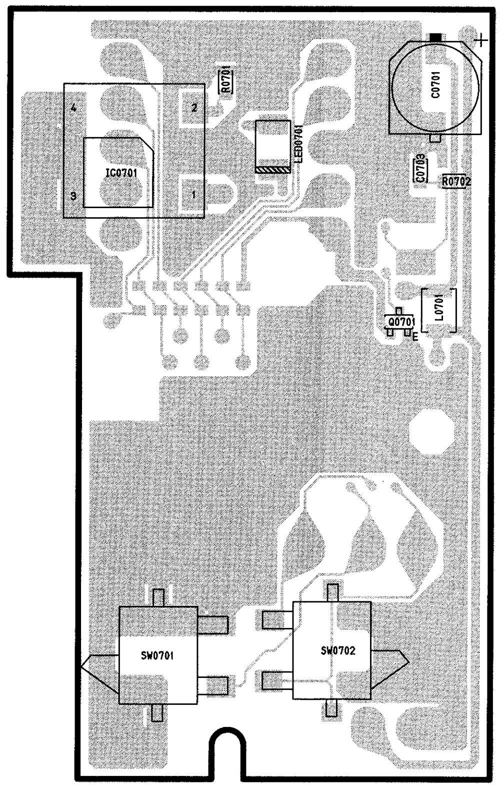
CON [CONTROL] -SIDE B-

SYMBOL No.	TYPE 768/765/665	TYPE 660	TYPE 565/563	TYPE 568	TYPE 368/360
PG0733	○	×	○	○	×
PG0734	○	×	○	○	×
R0763	○	○	○	×	×
R0767	○	○	○	×	×
SW0781	○	○	○	×	×

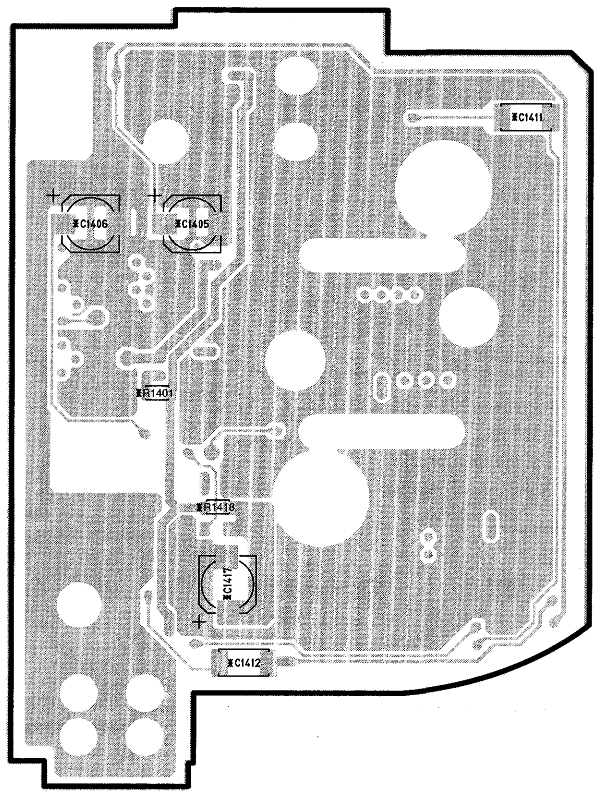
CON, SE, PSW CIRCUIT BOARD DIAGRAMS -SIDE A-


1
2
3
4
5
6
7
8
9
A
B
C
D
L0731
C0731
C0737
C0757
L0732
C0736
PG0731
PG0736
PG0732
PG0735
SW0773

CON –SIDE A–
[PATTERN No.JA1743-5]

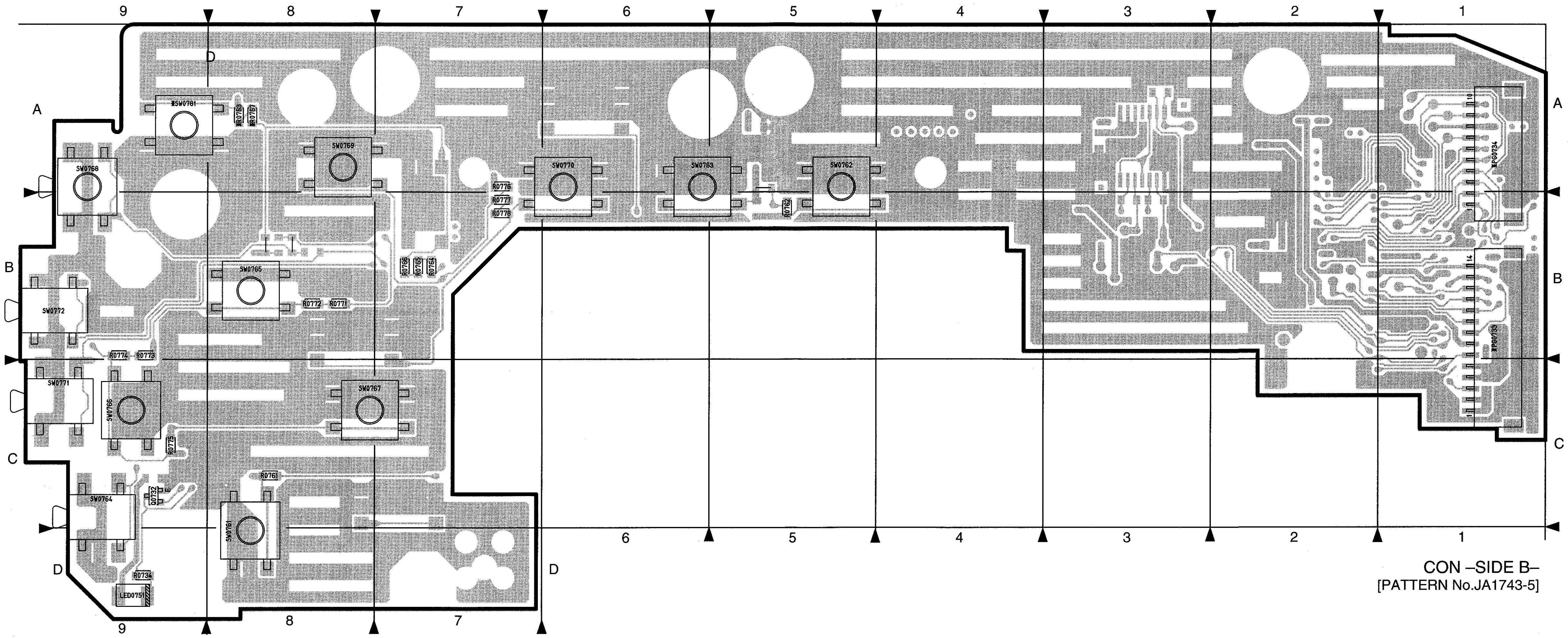

IC0701
R0701
LED0701
C0701
C0703
R0702
L0701
Q0701
SW0701
SW0702

PSW –SIDE A–
[PATTERN No.JA1743-5]

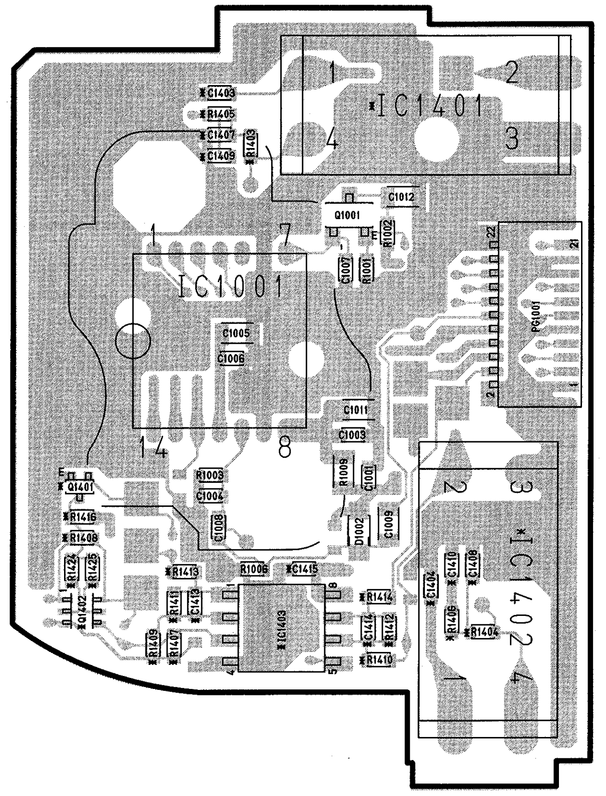

C1411
C1406
C1405
R1401
R1418
C1417
C1412

SE –SIDE A–
[PATTERN No.JA1743-5]

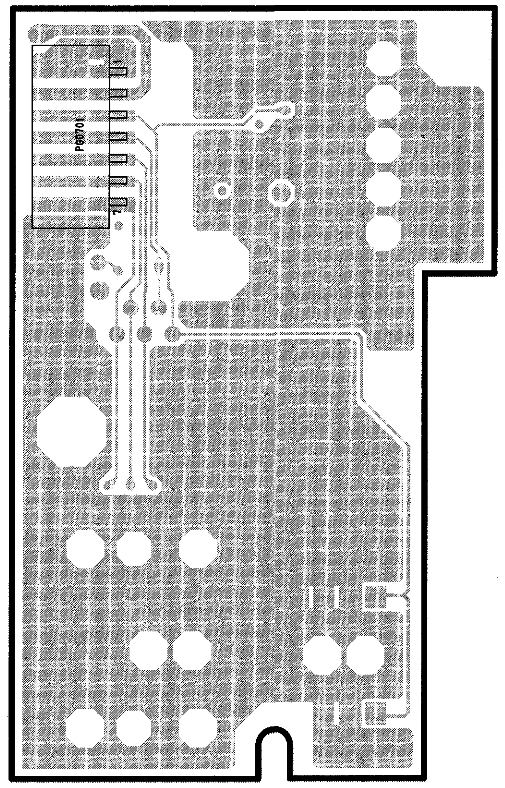
CON, SE, PSW CIRCUIT BOARD DIAGRAMS -SIDE B-


9
8
7
6
5
4
3
2
1
A
B
C
D
SW0781
SW0768
SW0769
SW0770
SW0763
SW0762
SW0765
SW0772
SW0771
SW0766
SW0767
SW0764
SW0761
R0776
R0777
R0778
R0772
R0771
R0774
R0773
R0761
R0734
LED0751

CON –SIDE B–
[PATTERN No.JA1743-5]

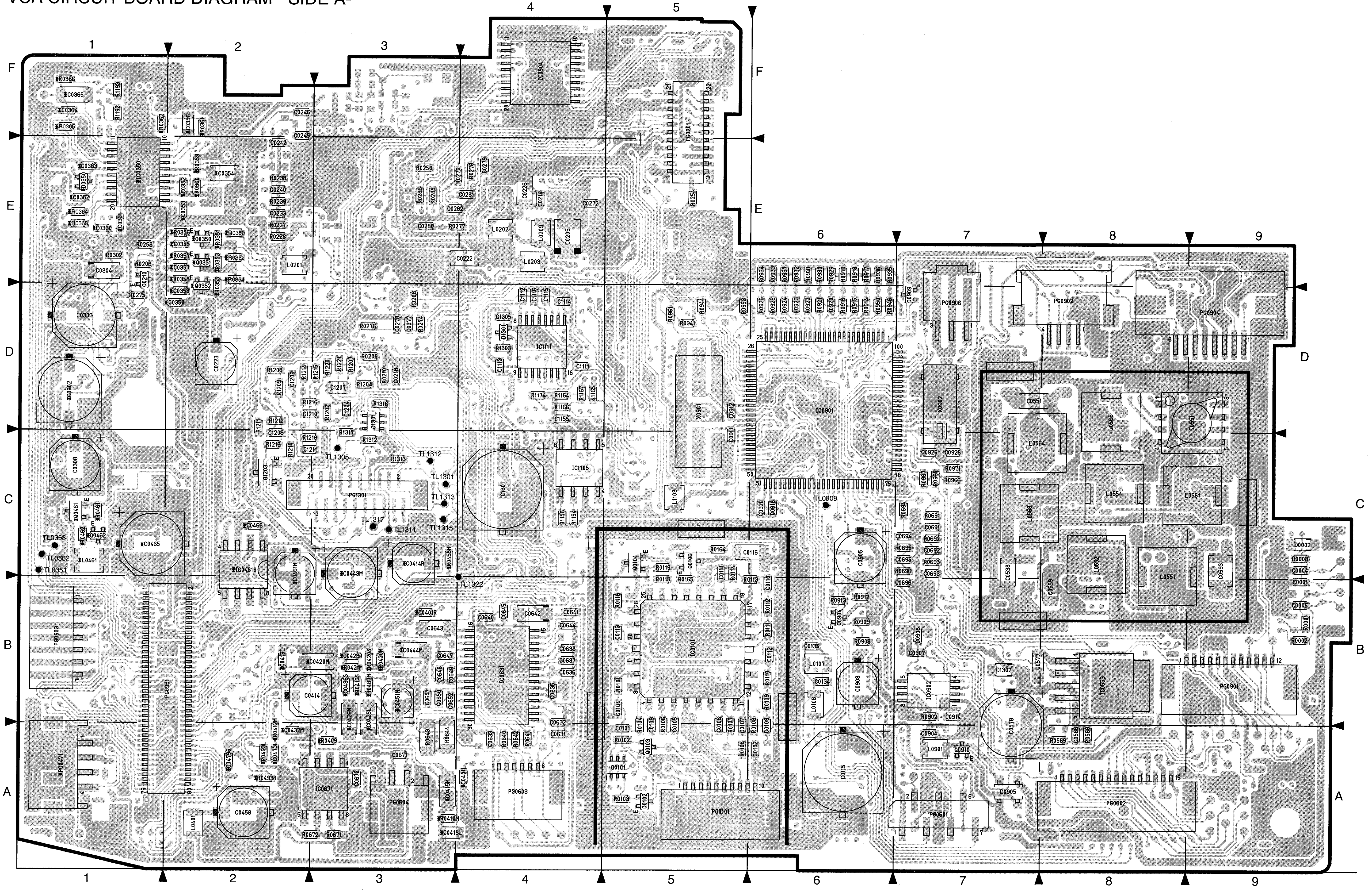

IC1401
1
2
3
4
C1403
R1405
C1407
C1409
Q1001
C1012
IC1001
1
7
14
8
C1005
C1006
C1011
C1003
PG1001
R1003
C1004
C1008
D1002
C1009
Q1401
R1416
R1408
R1413
R1006
C1415
R1414
IC1403
R1410
IC1402
R1404

SE –SIDE B–
[PATTERN No.JA1743-5]



PSW –SIDE B–
[PATTERN No.JA1743-5]

VCA CIRCUIT BOARD DIAGRAM -SIDE A-



VCA –SIDE A–
[PATTERN No.JA1743-5]

DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (∗) in the circuit board diagrams.

VCA [MAIN] -SIDE A-

SYMBOL No.	TYPE 768	TYPE 765/665	TYPE 660	TYPE 568/565/563	TYPE 368/360
C0302	○	○	○	×	×
C0350	○	○	×	○	×
C0352	○	○	×	○	×
C0353	○	○	×	○	×
C0354	○	○	×	○	×
C0355	○	○	×	○	×
C0356	○	○	×	○	×
C0357	○	○	×	○	×
C0358	○	○	×	○	×
C0360	○	○	×	○	×
C0361	○	○	×	○	×
C0362	○	○	×	○	×
C0363	○	○	×	○	×
C0364	○	○	×	○	×
C0365	○	○	×	○	×
C0401L	×	○	×	×	×
C0401R	×	○	×	×	×
C0414R	×	○	×	×	×
C0415M	○	×	○	○	○
C0416L	×	○	×	×	×
C0419L	×	○	×	×	×
C0420M	○	×	○	○	○
C0423R	×	○	×	×	×
C0425L	×	○	×	×	×
C0426M	○	×	○	○	○
C0432M	○	×	○	○	○
C0436S	×	○	×	×	×
C0443M	○	×	○	○	○
C0444M	○	×	○	○	○
C0451M	○	×	○	○	○
C0461M	○	×	○	○	○
C0465	○	○	×	○	×
C0466	○	○	×	○	×
C0473L	×	○	×	×	×
C0479S	×	○	×	×	×
D0350	○	○	×	○	×
IC0350	○	○	×	○	×
IC0461S	×	○	×	×	×
L0461	○	○	×	○	×
PG0471	2P	4P	2P	2P	2P
Q0350	○	○	×	○	×
Q0351	○	○	×	○	×
Q0352	○	○	×	○	×
Q0461	○	○	×	○	×
Q0462	○	○	×	○	×
R0350	JUMPER	JUMPER	×	JUMPER	×
R0351	○	○	×	○	×
R0352	JUMPER	JUMPER	×	JUMPER	×
R0353	○	○	×	○	×
R0354	JUMPER	JUMPER	×	JUMPER	×
R0355	○	○	×	○	×
R0356	○	○	×	○	×
R0357	○	○	×	○	×
R0358	○	○	×	○	×
R0359	○	○	×	○	×
R0360	○	○	×	○	×
R0361	○	○	×	○	×
R0362	○	○	×	○	×
R0363	JUMPER	JUMPER	×	JUMPER	×
R0364	JUMPER	JUMPER	×	JUMPER	×
R0365	JUMPER	JUMPER	×	JUMPER	×
R0366	○	○	×	○	×
R0409	○	JUMPER	○	○	○
R0410M	JUMPER	×	JUMPER	JUMPER	JUMPER
R0412M	JUMPER	×	JUMPER	JUMPER	JUMPER
R0413S	×	JUMPER	×	×	×
R0420M	JUMPER	×	×	JUMPER	×
R0420S	×	JUMPER	×	×	×
R0421M	JUMPER	×	JUMPER	JUMPER	JUMPER
R0455M	JUMPER	×	JUMPER	JUMPER	JUMPER
R0461	○	○	×	○	×
R0462	○	○	×	○	×
R0487M	JUMPER	×	JUMPER	JUMPER	JUMPER
R0493L	×	○	×	×	×
R0493R	×	○	×	×	×

DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

VCA [MAIN] -SIDE B-

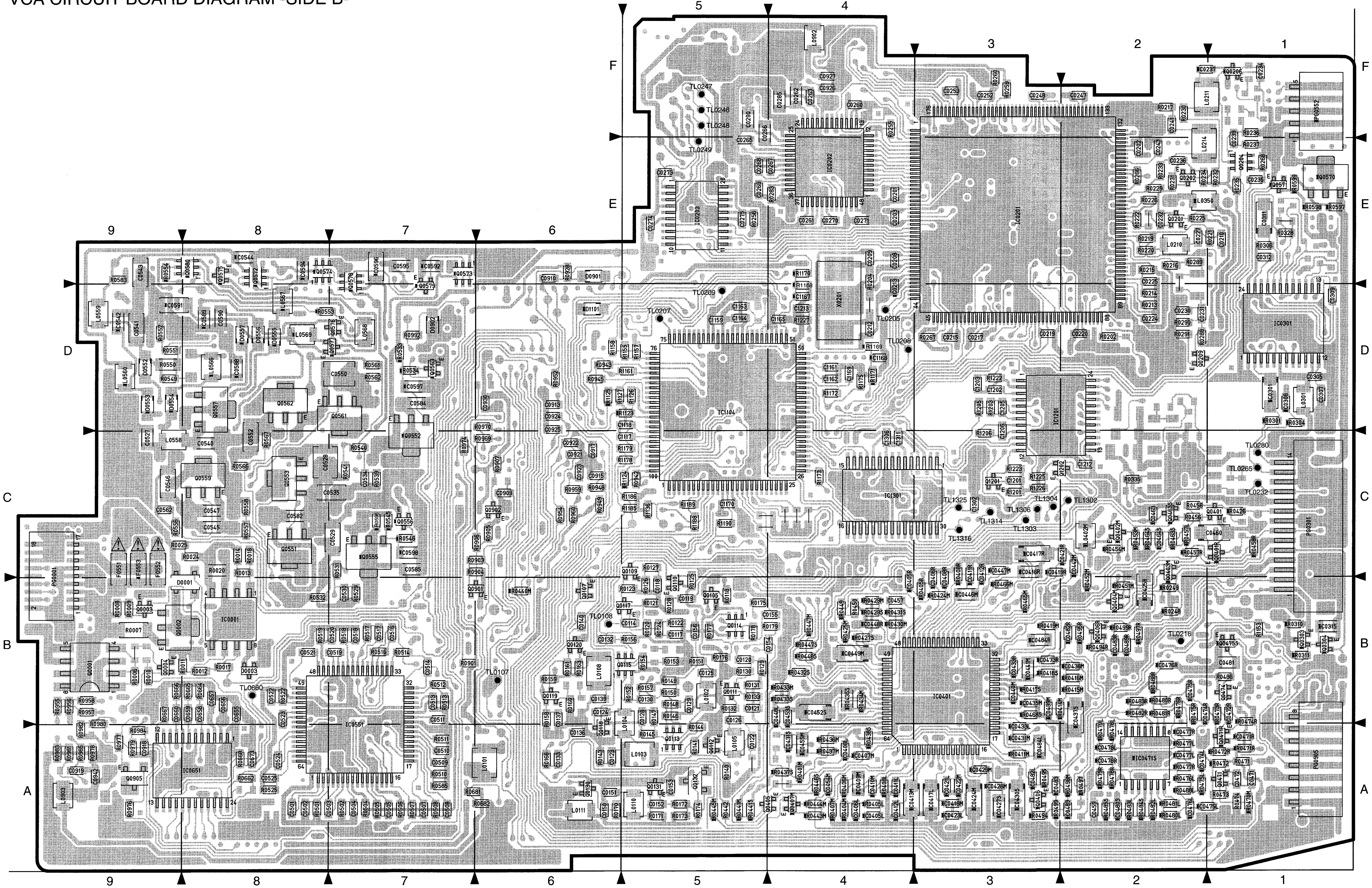
SYMBOL No.	TYPE 768	TYPE 765	TYPE 665	TYPE 660	TYPE 568	TYPE 565	TYPE 563	TYPE 368/360
C0237	○	○	○	○	×	×	×	×
C0301	○	○	○	○	×	×	×	×
C0306	○	○	○	○	×	×	×	×
C0315	○	○	○	×	×	○	○	×
C0405L	×	○	○	×	×	×	×	×
C0405R	×	○	○	×	×	×	×	×
C0406L	×	○	○	×	×	×	×	×
C0406R	×	○	○	×	×	×	×	×
C0407M	○	×	×	○	○	○	○	○
C0408L	×	○	○	×	×	×	×	×
C0408R	×	○	○	×	×	×	×	×
C0409M	○	×	×	○	○	○	○	○
C0410M	○	×	×	○	○	○	○	○
C0411L	×	○	○	×	×	×	×	×
C0411R	×	○	○	×	×	×	×	×
C0412L	×	○	○	×	×	×	×	×
C0412R	×	○	○	×	×	×	×	×
C0413M	○	×	×	○	○	○	○	○
C0416R	×	○	○	×	×	×	×	×
C0417L	×	○	○	×	×	×	×	×
C0417R	×	○	○	×	×	×	×	×
C0418M	○	×	×	○	○	○	○	○
C0419R	×	○	○	×	×	×	×	×
C0421L	×	○	○	×	×	×	×	×
C0421R	×	○	○	×	×	×	×	×
C0422M	○	×	×	○	○	○	○	○
C0423L	×	○	○	×	×	×	×	×
C0424M	○	×	×	○	○	○	○	○
C0425R	×	○	○	×	×	×	×	×
C0427S	×	○	○	×	×	×	×	×
C0428M	○	×	×	○	○	○	○	○
C0429M	○	×	×	○	○	○	○	○
C0430S	×	○	○	×	×	×	×	×
C0431M	○	×	×	○	○	○	○	○
C0431S	×	○	○	×	×	×	×	×
C0433L	×	○	○	×	×	×	×	×
C0433R	×	○	○	×	×	×	×	×
C0435M	○	×	×	○	○	○	○	○
C0437S	×	○	○	×	×	×	×	×
C0438M	○	×	×	○	○	○	○	○
C0439M	○	×	×	○	○	○	○	○
C0440M	○	×	×	○	○	○	○	○
C0441M	○	×	×	○	○	○	○	○
C0442M	○	×	×	○	○	○	○	○
C0446M	○	×	×	○	○	○	○	○
C0447M	○	×	×	×	○	○	○	×
C0448L	×	○	○	×	×	×	×	×
C0448R	×	○	○	×	×	×	×	×
C0449M	○	×	×	○	○	○	○	○
C0452S	×	○	○	×	×	×	×	×
C0453S	×	○	○	×	×	×	×	×
C0454M	○	×	×	○	○	○	○	○
C0455M	○	×	×	○	○	○	○	○
C0463	○	○	○	×	○	○	○	×
C0464S	×	○	○	×	×	×	×	×
C0471R	×	○	○	×	×	×	×	×
C0472R	×	○	○	×	×	×	×	×
C0473R	×	○	○	×	×	×	×	×
C0474L	×	○	○	×	×	×	×	×
C0474R	×	○	○	×	×	×	×	×
C0475L	×	○	○	×	×	×	×	×
C0475R	×	○	○	×	×	×	×	×
C0476L	×	○	○	×	×	×	×	×
C0476R	×	○	○	×	×	×	×	×
C0477L	×	○	○	×	×	×	×	×
C0477R	×	○	○	×	×	×	×	×
C0478L	×	○	○	×	×	×	×	×
C0478R	×	○	○	×	×	×	×	×
C0480S	×	○	○	×	×	×	×	×
C0482L	×	○	○	×	×	×	×	×
C0482R	×	○	○	×	×	×	×	×
C0483	○	○	○	×	×	○	○	×
C0483R	×	○	○	×	×	×	×	×
C0484L	×	○	○	×	×	×	×	×
C0484R	×	○	○	×	×	×	×	×
C0489	○	○	○	×	×	○	○	×

SYMBOL No.	TYPE 768	TYPE 765	TYPE 665	TYPE 660	TYPE 568	TYPE 565	TYPE 563	TYPE 368/360
C0489R	○	○	○	×	×	○	○	×
C0542	○	○	○	×	○	○	○	×
C0544	○	○	○	×	○	○	○	×
C0588	○	○	○	×	○	○	○	×
C0589	○	○	○	×	○	○	○	×
C0591	○	○	○	×	○	○	○	×
C0592	○	○	○	×	○	○	○	×
C0594	○	○	○	×	○	○	○	×
C0596	○	○	○	×	○	○	○	×
C0597	○	○	○	×	○	○	○	×
C0598	○	○	○	×	○	○	○	×
C1167	○	○	○	○	×	○	×	×
C1168	○	○	○	○	×	○	×	×
D0553	○	○	○	×	○	○	○	×
D0554	○	○	○	×	○	○	○	×
D0555	○	○	○	×	○	○	○	×
D0557	○	○	○	×	○	○	○	×
D1101	○	○	×	×	×	×	×	×
F0553	○	○	○	×	○	○	○	×
IC0471S	×	○	○	×	×	×	×	×
L0350	○	○	○	×	○	○	○	×
L0402M	○	×	×	○	○	○	○	○
L0560	○	○	○	×	○	○	○	×
L0566	○	○	○	×	○	○	○	×
L0567	○	○	○	×	○	○	○	×
L0569	○	○	○	×	○	○	○	×
PG0552	○	○	×	×	×	×	×	×
Q0206	○	○	○	○	×	×	×	×
Q0303	○	○	○	×	×	○	○	×
Q0304	○	○	○	×	×	○	○	×
Q0401R	×	○	○	×	×	×	×	×
Q0402M	○	×	×	○	○	○	○	○
Q0403M	○	×	×	×	×	○	○	×
Q0404M	○	×	×	×	×	○	○	×
Q0406	○	○	○	×	×	○	○	×
Q0406R	×	○	○	×	×	×	×	×
Q0407M	○	×	×	○	○	○	○	○
Q0463S	×	○	○	×	×	×	×	×
Q0471R	×	○	○	×	×	×	×	×
Q0475S	×	○	○	×	×	×	×	×
Q0552	○	○	○	×	○	○	○	×
Q0555	○	○	○	×	○	○	○	×
Q0556	○	○	○	×	○	○	○	×
Q0563	○	○	○	×	○	○	○	×
Q0570	○	○	×	×	×	×	×	×
Q0571	○	○	×	×	×	×	×	×
Q0572	○	○	○	×	○	○	○	×
Q0573	○	○	○	×	○	○	○	×
Q0574	○	○	○	×	○	○	○	×
Q0575	○	○	○	×	○	○	○	×
Q0577	○	○	○	×	○	○	○	×
Q0578	○	○	○	×	○	○	○	×
Q0579	○	○	○	×	○	○	○	×
Q0580	○	○	○	×	○	○	○	×
R0248	○	○	○	×	×	○	○	×
R0249	○	○	○	×	×	○	○	×
R0301	○	○	○	○	×	×	×	×
R0304	○	○	○	○	×	×	×	×
R0310	×	×	×	JUMPER	JUMPER	×	×	JUMPER
R0311	○	○	○	×	×	○	○	×
R0401M	○	×	×	○	○	○	○	○
R0404M	○	×	×	○	○	○	○	○
R0405L	×	○	○	×	×	×	×	×
R0405R	×	○	○	×	×	×	×	×
R0406M	○	×	×	○	○	○	○	○
R0407M	○	×	×	○	○	○	○	○
R0408L	×	JUMPER	JUMPER	×	×	×	×	×
R0408R	×	JUMPER	JUMPER	×	×	×	×	×
R0411M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0414M	○	×	×	○	○	○	○	○
R0415M	○	×	×	○	○	○	○	○
R0416M	○	×	×	○	○	○	○	○
R0417S	×	JUMPER	JUMPER	×	×	×	×	×
R0418S	×	JUMPER	JUMPER	×	×	×	×	×
R0419M	○	×	×	○	○	○	○	○
R0424M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER

SYMBOL No.	TYPE 768	TYPE 765	TYPE 665	TYPE 660	TYPE 568	TYPE 565	TYPE 563	TYPE 368/360
R0425M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0426	○	JUMPER	JUMPER	○	○	○	○	○
R0427S	×	JUMPER	JUMPER	×	×	×	×	×
R0429M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0429S	×	JUMPER	JUMPER	×	×	×	×	×
R0430M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0431S	×	○	○	×	×	×	×	×
R0432S	×	○	○	×	×	×	×	×
R0433M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0433S	×	JUMPER	JUMPER	×	×	×	×	×
R0434M	○	×	×	○	○	○	○	○
R0435S	×	○	○	×	×	×	×	×
R0436M	○	×	×	○	○	○	○	○
R0437M	○	×	×	○	○	○	○	○
R0437S	×	JUMPER	JUMPER	×	×	×	×	×
R0438S	×	JUMPER	JUMPER	×	×	×	×	×
R0440M	○	×	×	○	○	○	○	○
R0441M	JUMPER	×	×	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0441S	×	JUMPER	JUMPER	×	×	×	×	×
R0443M	○	×	×	○	○	○	○	○
R0444M	○	×	×	○	○	○	○	○
R0445M	○	×	×	○	○	○	○	○
R0446S	×	○	○	×	×	×	×	×
R0447M	○	×	×	○	○	○	○	○
R0447S	×	○	○	×	×	×	×	×
R0448S	×	○	○	×	×	×	×	×
R0449	○	○	○	×	○	○	○	×
R0451M	○	×	×	×	×	○	○	×
R0452M	○	×	×	×	×	○	○	×
R0453M	○	×	×	○	○	○	○	○
R0454M	○	×	×	○	○	○	○	○
R0457L	×	○	○	×	×	×	×	×
R0457R	×	○	○	×	×	×	×	×
R0458R	×	○	○	×	×	×	×	×
R0463S	×	○	○	×	×	×	×	×
R0464S	×	○	○	×	×	×	×	×
R0465M	JUMPER	×	×	×	JUMPER	JUMPER	JUMPER	×
R0466M	JUMPER	×	×	×	JUMPER	JUMPER	JUMPER	×
R0468S	×	○	○	×	×	×	×	×
R0470M	○	×	×	○	○	○	○	○
R0471R	×	○	○	×	×	×	×	×
R0472	JUMPER	○	○	JUMPER	JUMPER	JUMPER	JUMPER	JUMPER
R0472R	×	○	○	×	×	×	×	×
R0473R	×	○	○	×	×	×	×	×
R0474R	×	○	○	×	×	×	×	×
R0475L	×	○	○	×	×	×	×	×
R0475R	×	○	○	×	×	×	×	×
R0476L	×	○	○	×	×	×	×	×
R0476R	×	○	○	×	×	×	×	×
R0477L	×	○	○	×	×	×	×	×
R0477R	×	○	○	×	×	×	×	×
R0478L	×	○	○	×	×	×	×	×
R0478R	×	○	○	×	×	×	×	×
R0479L	×	○	○	×	×	×	×	×
R0479R	×	○	○	×	×	×	×	×
R0480L	×	○	○	×	×	×	×	×
R0480R	×	○	○	×	×	×	×	×
R0481L	×	○	○	×	×	×	×	×
R0481R	×	○	○	×	×	×	×	×
R0482L	×	○	○	×	×	×	×	×
R0482R	×	○	○	×	×	×	×	×
R0483L	×	○	○	×	×	×	×	×
R0483R	×	○	○	×	×	×	×	×
R0484S	×	○	○	×	×	×	×	×
R0485S	×	○	○	×	×	×	×	×
R0488L	×	JUMPER	JUMPER	×	×	×	×	×
R0488R	×	JUMPER	JUMPER	×	×	×	×	×
R0494	○	○	○	×	×	○	○	×
R0494R	×	○	○	×	×	×	×	×
R0495	○	○	○	×	×	○	○	×
R0495R	×	○	○	×	×	×	×	×
R0497	JUMPER	JUMPER	JUMPER	×	×	JUMPER	JUMPER	×
R0497R	JUMPER	JUMPER	JUMPER	×	×	JUMPER	JUMPER	×
R0498M	JUMPER	×	×	×	×	JUMPER	JUMPER	×
R0499	○	○	○	×	×	○	○	×
R0499R	×	○	○	×	×	×	×	×

SYMBOL No.	TYPE 768	TYPE 765	TYPE 665	TYPE 660	TYPE 568	TYPE 565	TYPE 563	TYPE 368/360
R0533	○	○	○	×	○	○	○	×
R0534	○	○	○	×	○	○	○	×
R0545	○	○	○	×	○	○	○	×
R0546	○	○	○	×	○	○	○	×
R0553	○	○	○	×	○	○	○	×
R0554	○	○	○	×	○	○	○	×
R0596	×	×	×	JUMPER	×	×	×	JUMPER
R0597	○	○	×	×	×	×	×	×
R0598	○	○	×	×	×	×	×	×
R0599	○	○	×	×	×	×	×	×
R1123	○	○	×	×	×	×	×	×
R1124	○	○	×	×	×	×	×	×
R1125	○	○	×	×	×	×	×	×
R1168	×	×	×	×	JUMPER	×	JUMPER	JUMPER
R1169	×	×	×	×	JUMPER	×	JUMPER	JUMPER
R1170	○	○	○	○	×	○	×	×
R1171	○	○	○	○	×	○	×	×

VCA CIRCUIT BOARD DIAGRAM -SIDE B-


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
IC0201
IC0202
IC0203
IC0301
IC1104
IC1201
IC1301
IC0401
IC0471S
IC0551
IC0651
IC0001
PG0001
PG0301
PG0905
PG0552
X0201

VCA –SIDE B–
[PATTERN No.JA1743-5]

IDENTIFICATION OF PARTS LOCATION

VCA

Symbol No.	Parts Location
C	
C0001	A-9B
C0004	A-9C
C0005	A-9B
C0101	A-5A
C0102	A-6A
C0104	A-5B
C0105	A-5A
C0106	A-5A
C0107	A-5A
C0108	A-5A
C0109	A-6A
C0110	A-6B
C0111	A-5C
C0112	A-6B
C0113	A-5B
C0114	B-5B
C0115	A-6A
C0116	A-6C
C0117	B-5B
C0118	B-5B
C0119	B-5B
C0120	B-5B
C0121	B-5B
C0122	B-5A
C0123	B-6A
C0124	B-6B
C0125	B-5B
C0126	B-5B
C0128	B-5B
C0129	B-5B
C0130	B-5B
C0132	B-6B
C0133	B-6A
C0134	A-6B
C0135	A-6B
C0136	B-6A
C0137	B-6B
C0139	B-6B
C0140	B-6B
C0150	B-6A
C0151	B-6A
C0152	B-5A
C0153	B-5A
C0154	B-4B
C0155	B-4B
C0156	B-5B
C0201	B-4E
C0202	B-2E
C0203	B-4E
C0205	A-4E
C0208	B-4E
C0209	B-4E
C0210	B-1E
C0212	B-4D
C0213	B-4D
C0214	A-4E
C0215	B-3D

Symbol No.	Parts Location
C0217	B-3D
C0218	A-3D
C0219	B-3D
C0220	B-2D
C0222	A-4E
C0223	A-2D
C0224	B-2D
C0225	B-2E
C0226	A-4E
C0227	B-2E
C0230	B-2D
C0231	B-2D
C0232	B-2E
C0233	A-2E
C0234	B-1F
C0235	B-1E
C0236	B-2E
C0237	B-1F
C0239	B-1E
C0240	A-2E
C0241	B-2F
C0242	A-2E
C0243	B-2E
C0245	A-2F
C0246	A-2F
C0247	B-2F
C0248	B-3F
C0252	B-3F
C0253	B-3F
C0260	B-4F
C0261	B-4E
C0262	B-4F
C0263	B-4F
C0265	B-5E
C0266	B-5F
C0267	B-4E
C0268	B-5E
C0269	B-5E
C0270	B-4E
C0271	B-4E
C0272	A-4E
C0273	B-5E
C0274	B-5E
C0275	B-5E
C0277	A-3D
C0278	A-3D
C0279	A-4E
C0280	A-3E
C0281	A-4E
C0282	A-3E
C0285	B-4F
C0290	B-5F
C0301	B-1D
C0302	A-1D
C0303	A-1D
C0304	A-1E
C0305	B-1D
C0306	B-1D

Symbol No.	Parts Location
C0307	B-1D
C0308	A-1C
C0309	B-1D
C0311	B-1E
C0312	B-1E
C0315	B-1B
C0350	A-2D
C0352	A-2E
C0353	A-2E
C0354	A-2E
C0355	A-2E
C0356	A-2F
C0357	A-2E
C0358	A-2D
C0360	A-1E
C0361	A-1E
C0362	A-1E
C0363	A-1E
C0364	A-1F
C0365	A-1F
C0401L	A-4A
C0401R	A-3B
C0405L	B-4A
C0405R	B-4B
C0406L	B-4A
C0406R	B-3B
C0407M	B-4A
C0408L	B-4A
C0408R	B-3B
C0409M	B-4A
C0410M	B-4A
C0411L	B-4A
C0411R	B-3B
C0412L	B-4A
C0412R	B-3B
C0413M	B-4A
C0414	A-2B
C0414R	A-3C
C0415M	A-3A
C0416L	A-3A
C0416R	B-3C
C0417L	B-3A
C0417R	B-3C
C0418M	B-3A
C0419L	A-2B
C0419R	B-3C
C0420M	A-3B
C0421L	B-3A
C0421R	B-2C
C0422M	B-3A
C0423L	B-3A
C0423R	A-3B
C0424M	B-3A
C0425L	A-3B
C0425R	B-2B
C0426M	A-3B
C0427S	B-3A
C0428M	B-3A

Symbol No.	Parts Location
C0429M	B-3A
C0430S	B-3A
C0431M	B-3A
C0431S	B-4A
C0432M	A-2A
C0433L	B-3A
C0433R	B-3B
C0435M	B-3B
C0436S	A-3B
C0437S	B-2B
C0438M	B-2B
C0439M	B-3B
C0440M	B-3B
C0441M	B-3B
C0442M	B-2C
C0443M	A-3C
C0444M	A-3B
C0446M	B-3B
C0447M	B-3C
C0448L	B-4B
C0448R	B-4B
C0449M	B-4B
C0451M	A-3B
C0452S	B-4B
C0453S	B-4B
C0454M	B-4A
C0455M	B-4A
C0457	B-4B
C0458	A-2A
C0459	B-2A
C0460	B-1C
C0461M	A-2C
C0463	B-2C
C0464S	B-2C
C0465	A-1C
C0466	A-2C
C0471	B-1A
C0471R	B-1A
C0472	B-1A
C0472R	B-1B
C0473L	A-2A
C0473R	B-3B
C0474L	B-2A
C0474R	B-2B
C0475L	B-1A
C0475R	B-2B
C0476L	B-2A
C0476R	B-2B
C0477L	B-2A
C0477R	B-2A
C0478L	B-2A
C0478R	B-2A
C0479S	A-2A
C0480S	B-2A
C0481	B-1B
C0482L	B-3A
C0482R	B-2B
C0483	B-3A

Symbol No.	Parts Location
C0483R	B-2B
C0484L	B-3A
C0484R	B-3B
C0489	B-2A
C0489R	B-2B
C0501	B-8A
C0502	B-8A
C0503	B-7A
C0504	B-7A
C0505	B-7A
C0507	B-7A
C0508	B-7A
C0509	B-7A
C0510	B-7A
C0511	B-7B
C0513	B-7B
C0514	B-7B
C0516	B-7B
C0517	B-7B
C0518	B-7B
C0519	B-7B
C0520	B-7B
C0521	B-8B
C0522	B-8B
C0523	B-8B
C0524	B-8A
C0525	B-8A
C0527	B-9C
C0528	B-8C
C0529	B-7C
C0530	B-7B
C0534	B-7C
C0535	B-7C
C0538	A-7C
C0540	B-8C
C0541	B-9D
C0542	B-9D
C0543	B-9E
C0544	B-8E
C0545	B-8C
C0546	B-9C
C0547	B-8C
C0550	B-7D
C0551	A-7D
C0552	B-8C
C0559	A-8B
C0562	B-9C
C0577	A-7B
C0578	A-7A
C0582	B-8C
C0584	B-7D
C0585	B-7C
C0586	A-8A
C0588	B-8D
C0589	B-8D
C0590	B-8D
C0591	B-9D
C0592	B-7E

Symbol No.	Parts Location
C0593	A-9C
C0594	B-8E
C0595	B-7E
C0596	B-7E
C0597	B-7D
C0598	B-7C
C0631	A-4A
C0632	A-4B
C0633	A-4A
C0635	A-4B
C0636	A-4B
C0637	A-4B
C0638	A-4B
C0640	A-4B
C0641	A-4B
C0642	A-4B
C0643	A-3B
C0644	A-4B
C0645	A-4B
C0647	A-3B
C0648	A-3B
C0649	A-3B
C0650	A-3B
C0651	A-3B
C0652	A-3B
C0655	B-8B
C0656	B-8B
C0657	B-8B
C0658	B-8B
C0659	B-8B
C0660	B-9B
C0671	A-3A
C0672	A-3A
C0673	B-8A
C0691	A-7C
C0692	A-7C
C0693	A-7C
C0694	A-7C
C0695	A-7C
C0696	A-7B
C0904	A-7A
C0905	A-6C
C0906	A-7B
C0907	A-7B
C0908	A-6B
C0909	B-6C
C0910	B-6E
C0911	A-5C
C0912	A-5D
C0913	B-6D
C0914	A-7B
C0915	B-6C
C0916	A-6C
C0917	B-6C
C0918	B-9A
C0919	B-9A
C0920	A-6C
C0921	B-6C

Symbol No.	Parts Location
C0922	B-6C
C0923	B-6C
C0924	B-6D
C0925	B-6D
C0926	B-4F
C0927	B-4F
C0928	A-7C
C0929	A-7C
C0930	B-6D
C0942	B-9A
C1111	A-4D
C1112	A-4D
C1113	A-4D
C1114	A-4D
C1115	A-4D
C1116	A-4D
C1117	B-5C
C1118	B-5D
C1155	A-4D
C1159	B-5D
C1161	B-4D
C1162	B-4D
C1163	B-5D
C1164	B-5D
C1165	B-4D
C1167	B-4D
C1168	B-4D
C1169	B-4D
C1170	B-5C
C1201	B-3C
C1202	B-3D
C1203	B-3D
C1204	A-3D
C1205	B-3D
C1206	B-3C
C1207	A-3D
C1208	A-2C
C1209	A-2D
C1210	A-2D
C1211	A-2C
C1212	B-2C
C1213	B-4D
C1301	A-4C
C1302	B-3C
C1305	A-4D
C1306	B-4C
C1311	B-4C
D	
D0001	B-8B
D0002	A-9C
D0003	B-8B
D0350	A-1E
D0552	B-9D
D0553	B-9D
D0554	B-9D
D0555	B-8D
D0556	B-8D
D0557	B-8D

Symbol No.	Parts Location
D0901	B-6E
D0902	B-7D
D0905	A-7A
D1101	B-6D
D1301	A-4D
D1302	A-7B
F	
F0551	B-9C
F0552	B-9C
F0553	B-9C
IC	
IC0001	B-8B
IC0101	A-5B
IC0201	B-3E
IC0202	B-4E
IC0203	B-5E
IC0301	B-1D
IC0350	A-1E
IC0401	B-3B
IC0461S	A-2C
IC0471S	B-2A
IC0551	B-7A
IC0553	A-8B
IC0631	A-4B
IC0651	B-8A
IC0671	A-3A
IC0901	A-6D
IC0902	A-7B
IC0904	A-4F
IC1104	B-5D
IC1105	A-4C
IC1111	A-4D
IC1201	B-3D
IC1301	B-4C
L	
L0101	B-6A
L0102	B-5B
L0103	B-5A
L0104	B-5A
L0105	B-5A
L0106	A-6B
L0107	A-6B
L0108	B-6B
L0110	B-5A
L0111	B-6A
L0201	A-2E
L0202	A-4E
L0203	A-4E
L0209	A-4E
L0210	B-2E
L0211	B-1F
L0214	B-2E
L0301	B-1D
L0350	B-2E
L0401	A-2A
L0402M	B-2C
L0461	A-1C
L0551	A-8C

Symbol No.	Parts Location
L0552	A-8C
L0554	A-8C
L0558	B-9C
L0559	B-9D
L0560	B-9D
L0561	A-9C
L0563	A-7C
L0564	A-7C
L0565	A-8D
L0566	B-8D
L0567	B-8D
L0568	B-7D
L0569	B-8D
L0901	A-7A
L0902	B-4F
L0903	B-9A
L1103	A-5C
PG	
PG0001	B-9C
PG0101	A-5A
PG0201	A-5F
PG0301	B-1C
PG0471	A-1A
PG0552	B-1F
PG0601	A-7A
PG0602	A-8A
PG0603	A-4A
PG0604	A-3A
PG0901	A-9B
PG0902	A-8D
PG0903	A-1B
PG0904	A-9D
PG0905	B-1A
PG0906	A-7D
PG0951	A-1B
PG1301	A-3C
Q	
Q0001	B-9B
Q0002	B-9B
Q0003	B-9B
Q0004	B-9B
Q0101	A-5A
Q0102	A-5A
Q0103	A-5A
Q0104	A-5C
Q0105	B-5B
Q0106	A-5C
Q0107	B-6B
Q0109	B-5C
Q0110	B-5B
Q0111	B-5B
Q0112	B-5A
Q0113	B-5A
Q0114	B-5B
Q0115	B-5B
Q0117	B-5B
Q0118	B-6A
Q0119	B-6B

Symbol No.	Parts Location
Q0120	B-6B
Q0130	B-6A
Q0131	B-5A
Q0132	B-5A
Q0201	B-2E
Q0202	B-2E
Q0204	B-1E
Q0206	B-1F
Q0209	B-2D
Q0210	A-1E
Q0303	B-1B
Q0304	B-1B
Q0350	A-2E
Q0351	A-2E
Q0352	A-2D
Q0401	B-1C
Q0401R	B-1C
Q0402M	B-2C
Q0403M	B-2C
Q0404M	B-2B
Q0405	B-4A
Q0406	B-3A
Q0406R	B-2B
Q0407M	B-4A
Q0461	A-1C
Q0462	A-1C
Q0463S	B-2C
Q0471	B-1A
Q0471R	B-1A
Q0474	B-1B
Q0475S	B-1B
Q0551	B-8C
Q0552	B-7C
Q0553	B-8C
Q0555	B-7C
Q0556	B-7C
Q0557	B-8D
Q0559	B-8C
Q0561	B-7D
Q0562	B-8D
Q0563	B-7D
Q0570	B-1E
Q0571	B-1E
Q0572	B-8E
Q0573	B-7E
Q0574	B-8E
Q0575	B-8E
Q0576	B-7D
Q0577	B-7D
Q0578	B-7E
Q0579	B-7D
Q0580	B-8E
Q0901	B-6B
Q0902	B-6C
Q0904	A-6B
Q0905	B-9A
Q0909	A-7D
Q0910	A-7A

Symbol No.	Parts Location
Q1201	B-3C
Q1202	B-2C
Q1203	A-2C
Q1301	A-3D
R	
R0001	A-9B
R0002	A-9B
R0003	A-9C
R0006	B-9B
R0007	B-9B
R0008	B-9B
R0009	B-9B
R0010	B-9B
R0011	B-8B
R0012	B-8B
R0013	B-8C
R0014	B-8C
R0017	B-8B
R0018	B-8C
R0020	B-8C
R0024	B-8C
R0025	B-9C
R0101	A-5B
R0102	A-5A
R0103	A-5A
R0104	A-5A
R0105	A-5A
R0106	A-5A
R0107	A-5A
R0108	A-6A
R0109	A-6B
R0110	A-6B
R0111	A-6B
R0112	A-6B
R0113	A-6B
R0114	A-5C
R0115	A-5B
R0116	A-5B
R0118	B-5B
R0119	A-5C
R0120	B-5B
R0121	B-5B
R0122	B-5B
R0123	B-5B
R0124	B-5B
R0125	B-5B
R0126	B-5B
R0127	B-5C
R0128	B-5B
R0129	B-5B
R0130	B-5B
R0131	B-5B
R0132	B-5B
R0133	B-5B
R0140	B-5A
R0141	B-5A
R0143	B-6B
R0144	B-5A

Symbol No.	Parts Location
R0145	B-5A
R0146	B-5B
R0147	B-5B
R0148	B-5B
R0149	B-5B
R0150	B-5B
R0151	B-5B
R0152	B-5B
R0153	B-5B
R0154	B-5B
R0156	B-5B
R0157	B-5B
R0158	B-6B
R0159	B-6B
R0160	B-6B
R0161	B-6B
R0163	B-6B
R0164	A-5C
R0165	A-5B
R0166	B-6A
R0170	B-6A
R0171	B-5A
R0172	B-5A
R0173	B-5A
R0174	B-5A
R0175	B-5B
R0176	B-5B
R0177	B-5B
R0178	B-5B
R0179	B-4B
R0202	B-2D
R0204	B-4D
R0206	A-1E
R0208	A-3D
R0209	A-3D
R0210	A-3D
R0213	B-2D
R0214	B-2D
R0215	B-2E
R0216	B-2E
R0217	B-2F
R0219	B-2E
R0220	B-2E
R0221	B-1E
R0222	B-2E
R0225	B-2E
R0226	B-2E
R0227	A-2E
R0228	A-2E
R0229	B-2E
R0230	B-2F
R0231	B-2E
R0232	B-1E
R0233	B-2E
R0234	B-2E
R0235	B-1E
R0236	B-1F
R0237	B-1E

Symbol No.	Parts Location
R0238	A-2E
R0239	A-2E
R0248	B-2B
R0249	B-2B
R0250	A-3E
R0254	A-5E
R0255	B-4F
R0256	B-5E
R0258	A-1E
R0259	B-3F
R0260	B-3F
R0266	B-2E
R0267	B-3D
R0268	B-1E
R0274	A-3D
R0275	A-1D
R0276	A-3D
R0277	A-3E
R0278	A-4E
R0279	A-3E
R0283	B-4E
R0285	A-3E
R0286	A-3E
R0288	B-2D
R0289	B-2E
R0290	B-2D
R0291	B-2D
R0301	B-1D
R0302	A-1E
R0304	B-1D
R0306	B-1E
R0310	B-1B
R0311	B-1B
R0328	B-1E
R0335	B-2C
R0350	A-2E
R0351	A-2E
R0352	A-2E
R0353	A-2E
R0354	A-2E
R0355	A-2D
R0356	A-2E
R0357	A-2E
R0358	A-2E
R0359	A-2E
R0360	A-2E
R0361	A-2F
R0362	A-1F
R0363	A-1E
R0364	A-1E
R0365	A-1F
R0366	A-1F
R0401M	B-4A
R0404M	B-4A
R0405L	B-4A
R0405R	B-3B
R0406M	B-4A
R0407M	B-4A

Symbol No.	Parts Location
R0408L	B-4A
R0408R	B-3B
R0409	A-3A
R0410M	A-3A
R0411M	B-3A
R0412M	A-2A
R0413S	A-3B
R0414M	B-2B
R0415M	B-2B
R0416M	B-2B
R0417S	B-3B
R0418S	B-3B
R0419M	B-3B
R0420M	A-3B
R0420S	A-3B
R0421M	A-3B
R0424M	B-3B
R0425M	B-4B
R0426	B-1C
R0427S	B-4B
R0429M	B-4B
R0429S	B-4B
R0430M	B-4B
R0431S	B-4B
R0432S	B-4B
R0433M	B-4B
R0433S	B-4B
R0434M	B-4B
R0435S	B-4B
R0436M	B-4A
R0437M	B-4A
R0437S	B-4A
R0438S	B-4A
R0440M	B-6B
R0441M	B-5A
R0441S	B-5A
R0442	B-5A
R0443M	B-4A
R0444M	B-4A
R0445M	B-5A
R0446S	B-4A
R0447M	B-4B
R0447S	B-4B
R0448S	B-4B
R0449	B-4B
R0450	B-4B
R0451M	B-2B
R0452M	B-2B
R0453M	B-2C
R0454M	B-2C
R0455M	A-3C
R0456	B-2C
R0457L	B-2C
R0457R	B-2C
R0458	B-2C
R0458R	B-1C
R0461	A-1C
R0462	A-1C

Symbol No.	Parts Location
R0463S	B-2C
R0464S	B-2C
R0465M	B-3B
R0466M	B-3B
R0468S	B-3B
R0470M	B-1A
R0471	B-1A
R0471R	B-1A
R0472	B-1A
R0472R	B-1A
R0473	B-1A
R0473R	B-1B
R0474	B-1A
R0474R	B-1B
R0475L	B-2A
R0475R	B-2B
R0476L	B-2A
R0476R	B-2B
R0477L	B-2A
R0477R	B-2A
R0478L	B-2A
R0478R	B-2A
R0479L	B-2A
R0479R	B-2A
R0480L	B-2A
R0480R	B-2B
R0481L	B-2A
R0481R	B-2B
R0482L	B-2A
R0482R	B-2B
R0483L	B-2A
R0483R	B-2B
R0484S	B-2A
R0485S	B-2A
R0486	B-1B
R0487M	A-3B
R0488L	B-2A
R0488R	B-2B
R0493L	A-2A
R0493R	A-2A
R0494	B-3A
R0494R	B-2B
R0495	B-3A
R0495R	B-2B
R0497	B-2A
R0497R	B-2B
R0498M	B-2A
R0499	B-3A
R0499R	B-2B
R0501	B-8A
R0502	B-7A
R0504	B-7A
R0505	B-7A
R0506	B-7A
R0507	B-7A
R0508	B-7A
R0510	B-7A
R0511	B-7A

Symbol No.	Parts Location
R0512	B-7B
R0513	B-7B
R0514	B-7B
R0516	B-7B
R0517	B-7B
R0518	B-7B
R0519	B-8B
R0522	B-8B
R0525	B-8A
R0529	B-7B
R0531	B-7C
R0532	B-8B
R0533	B-7D
R0534	B-7D
R0539	B-7C
R0540	B-7C
R0541	B-7C
R0545	B-7C
R0546	B-7C
R0549	B-9D
R0550	B-9D
R0551	B-9D
R0552	B-9D
R0553	B-8D
R0554	B-9E
R0556	B-9C
R0557	B-8C
R0558	B-8C
R0561	B-7D
R0562	B-7D
R0566	B-8C
R0567	B-8C
R0568	A-8A
R0569	A-8A
R0583	B-9E
R0585	B-7A
R0596	B-7C
R0597	B-1E
R0598	B-1E
R0599	B-1E
R0640	A-4A
R0641	A-4A
R0642	A-4A
R0643	A-3A
R0644	A-3A
R0662	B-8A
R0664	B-8B
R0665	B-8B
R0666	B-9B
R0667	B-9B
R0668	B-8A
R0671	A-3A
R0672	A-3A
R0681	B-6A
R0682	B-6A
R0691	A-7C
R0692	A-7C
R0693	A-7C

Symbol No.	Parts Location
R0694	A-7C
R0695	A-7C
R0696	A-7C
R0901	B-7B
R0902	A-7B
R0903	B-6C
R0904	B-6C
R0905	B-6C
R0906	B-6C
R0907	B-6C
R0908	A-6B
R0909	A-6B
R0912	A-6B
R0913	A-6B
R0914	A-6D
R0915	A-6D
R0916	A-6D
R0917	A-6E
R0918	A-6E
R0919	A-6E
R0920	A-6D
R0921	A-6D
R0922	A-6D
R0923	A-6D
R0924	A-6D
R0925	A-6D
R0926	A-6D
R0928	B-6E
R0929	A-6E
R0930	A-6E
R0931	A-6E
R0932	A-6E
R0933	A-6E
R0934	A-6E
R0935	A-6E
R0936	A-6E
R0937	A-6E
R0941	A-5D
R0942	B-5C
R0943	B-6D
R0944	A-5D
R0945	B-6D
R0946	A-6D
R0948	B-6C
R0949	B-6C
R0950	A-6D
R0952	B-6D
R0953	A-5D
R0954	B-6C
R0955	B-9B
R0956	B-9B
R0957	B-9B
R0958	B-9B
R0959	B-6C
R0960	B-6C
R0961	A-5D
R0965	A-7C
R0966	A-7C

Symbol No.	Parts Location
R0967	A-7C
R0969	B-6C
R0970	B-6D
R0971	A-7C
R0974	B-7C
R0976	B-9A
R0977	B-9A
R0978	B-9A
R0979	B-9A
R0980	B-9A
R0981	B-9A
R0982	B-9A
R0983	B-9A
R0984	B-9A
R0985	B-9A
R0992	B-7D
R1123	B-5D
R1124	B-5C
R1125	B-6D
R1126	B-5D
R1127	B-6D
R1136	B-5C
R1153	B-1B
R1154	A-4C
R1155	B-5D
R1156	A-4C
R1157	B-5D
R1158	B-6D
R1161	B-5D
R1164	A-4D
R1165	A-4D
R1166	A-4D
R1167	A-4D
R1170	B-4E
R1171	B-4D
R1172	B-4D
R1173	B-4C
R1174	A-4D
R1175	B-4D
R1178	B-5C
R1179	B-5C
R1185	B-5C
R1186	B-5C
R1188	B-5C
R1189	B-5C
R1190	B-5C
R1192	A-1F
R1193	A-1F
R1201	B-3C
R1202	A-3D
R1203	B-3D
R1204	A-3D
R1205	B-3D
R1206	B-3C
R1207	A-3D
R1208	A-2D
R1209	A-2D
R1210	A-2C

Symbol No.	Parts Location
R1211	A-2D
R1212	A-2D
R1213	A-2C
R1214	A-2D
R1215	A-3D
R1216	A-2D
R1218	A-2C
R1220	A-3D
R1221	A-3D
R1222	B-3D
R1223	B-3C
R1225	B-3C
R1226	B-3C
R1227	B-4D
R1303	A-4D
R1312	A-3C
R1313	A-3C
R1316	A-3D
R1317	A-3C
T	
T0551	A-9D
TL	
TL0107	B-6B
TL0108	B-6B
TL0205	B-4D
TL0207	B-5D
TL0208	B-4D
TL0209	B-5D
TL0216	B-2B
TL0232	B-1C
TL0246	B-5F
TL0247	B-5F
TL0248	B-5F
TL0249	B-5F
TL0265	B-1C
TL0280	B-1C
TL0351	A-1C
TL0352	A-1C
TL0353	A-1C
TL0660	B-8B
TL0909	A-6C
TL1301	A-3C
TL1302	B-2C
TL1303	B-3C
TL1304	B-3C
TL1305	A-3C
TL1306	B-3C
TL1311	A-3C
TL1312	A-3C
TL1313	A-3C
TL1314	B-3C
TL1315	A-3C
TL1316	B-3C
TL1317	A-3C
TL1322	A-4B
TL1325	B-3C
X	
X0201	B-4D

Symbol No.	Parts Location
X0901	A-5D
X0902	A-7D

LCD

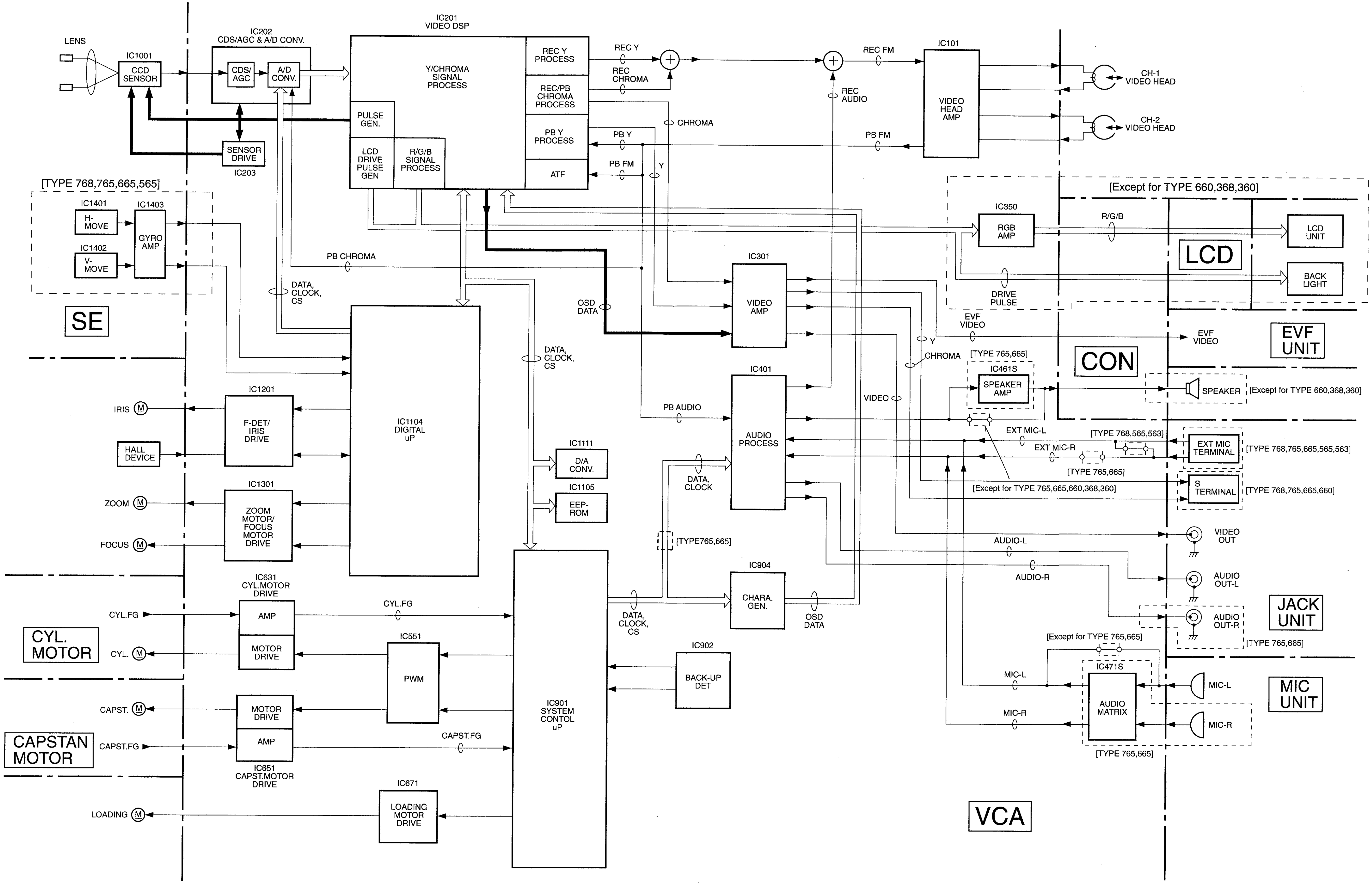
Symbol No.	Parts Location
C	
C5314	2A
C5319	1A
C5320	2B
C5501	4C
C5502	4B
C5503	4B
C5504	4B
C5505	4B
C5507	3B
C5509	2B
C5510	2B
C5511	2A
C5512	2A
C5513	3A
C5524	4A
D	
D5301	1B
IC	
IC5501	4B
L	
L5301	2A
L5302	1A
L5303	2A
L5304	2A
L5501	3B
L5502	2B
L5503	2A
PG	
PG5301	4C
PG5302	2B
PG5303	1A
PG5501	4A
PG5701	3B
Q	
Q5303	3B
Q5304	3B
Q5305	4C
Q5306	3B
Q5307	3B
Q5501	4C
Q5502	4B
Q5505	4B
Q5506	4B
Q5510	2B
Q5511	2B
Q5512	3A
Q5513	2A
R	
R5307	4C
R5308	4C
R5330	2B
R5332	1B
R5333	1B
R5334	3B
R5339	3B
R5340	3B
R5502	4B
R5503	4B
R5504	4B
R5505	4B
R5506	4B
R5508	4B
R5509	4B
R5510	4B
R5511	4B
R5522	2B
R5523	2B
R5524	2B
R5525	3A
SW	
SW5302	1A
SW5303	1B
T	
T5501	3A

CON

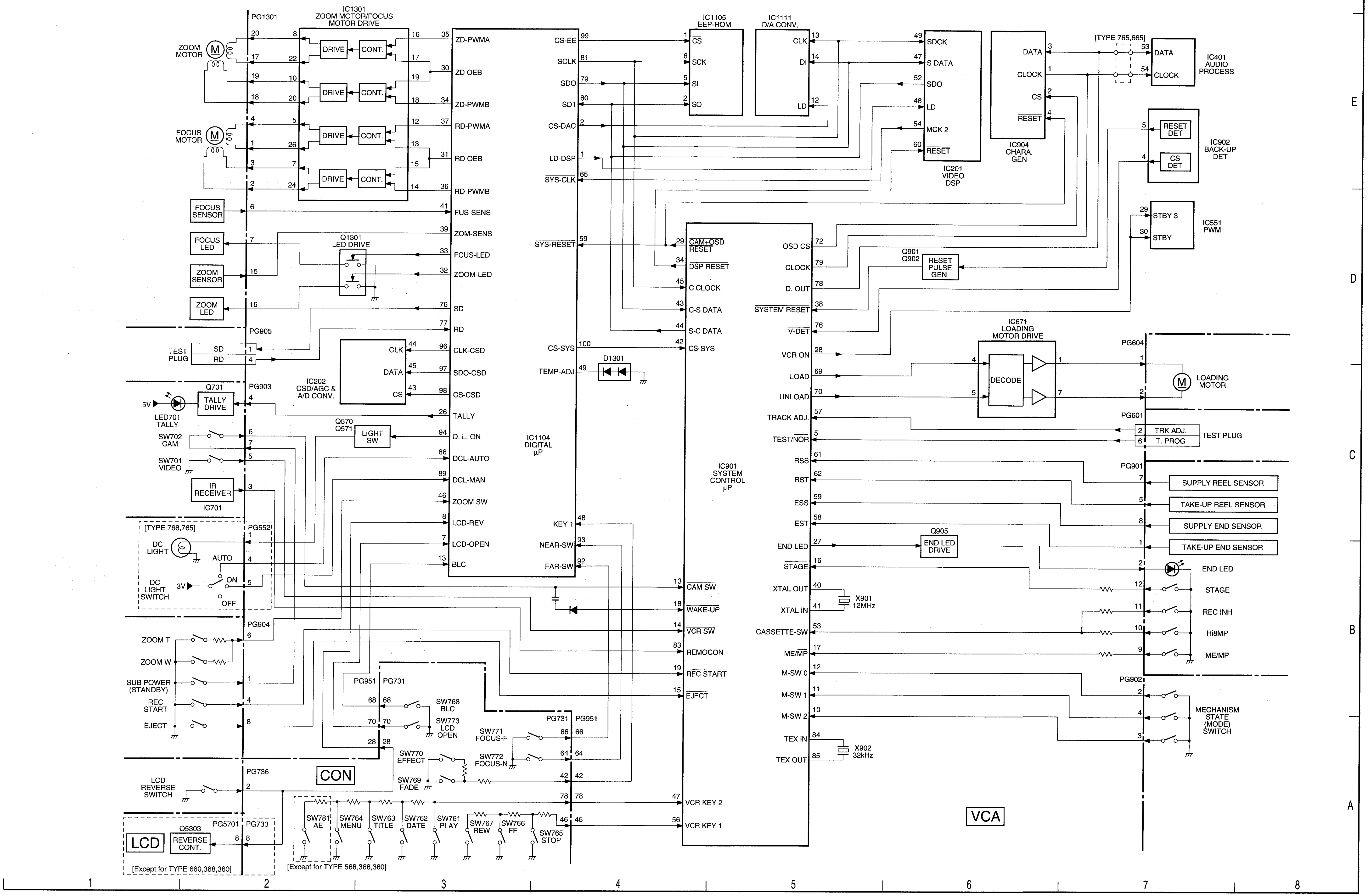
Symbol No.	Parts Location
C	
C0731	A-2A
C0736	A-3B
C0737	A-3A
C0757	A-3A
L	
L0731	A-2A
L0732	A-3A
LED	
LED0751	B-9D
PG	
PG0731	A-2B
PG0732	A-2B
PG0733	B-1B
PG0734	B-1A
PG0735	A-3B
PG0736	A-2B
Q	
Q0732	B-9C
R	
R0734	B-9D
R0761	B-8C
R0762	B-5B
R0763	B-8A
R0764	B-7B
R0765	B-7B
R0766	B-7B
R0767	B-8A
R0771	B-8B
R0772	B-8B
R0773	B-9B
R0774	B-9B
R0775	B-9C
R0776	B-7A
R0777	B-7B
R0778	B-7B
SW	
SW0761	B-8D
SW0762	B-5A
SW0763	B-6A
SW0764	B-9C
SW0765	B-8B
SW0766	B-9C
SW0767	B-8C
SW0768	B-9A
SW0769	B-8A
SW0770	B-6A
SW0771	B-9C
SW0772	B-9B
SW0773	A-7D
SW0781	B-9A

BLOCK DIAGRAMS

1. OVERALL BLOCK DIAGRAM

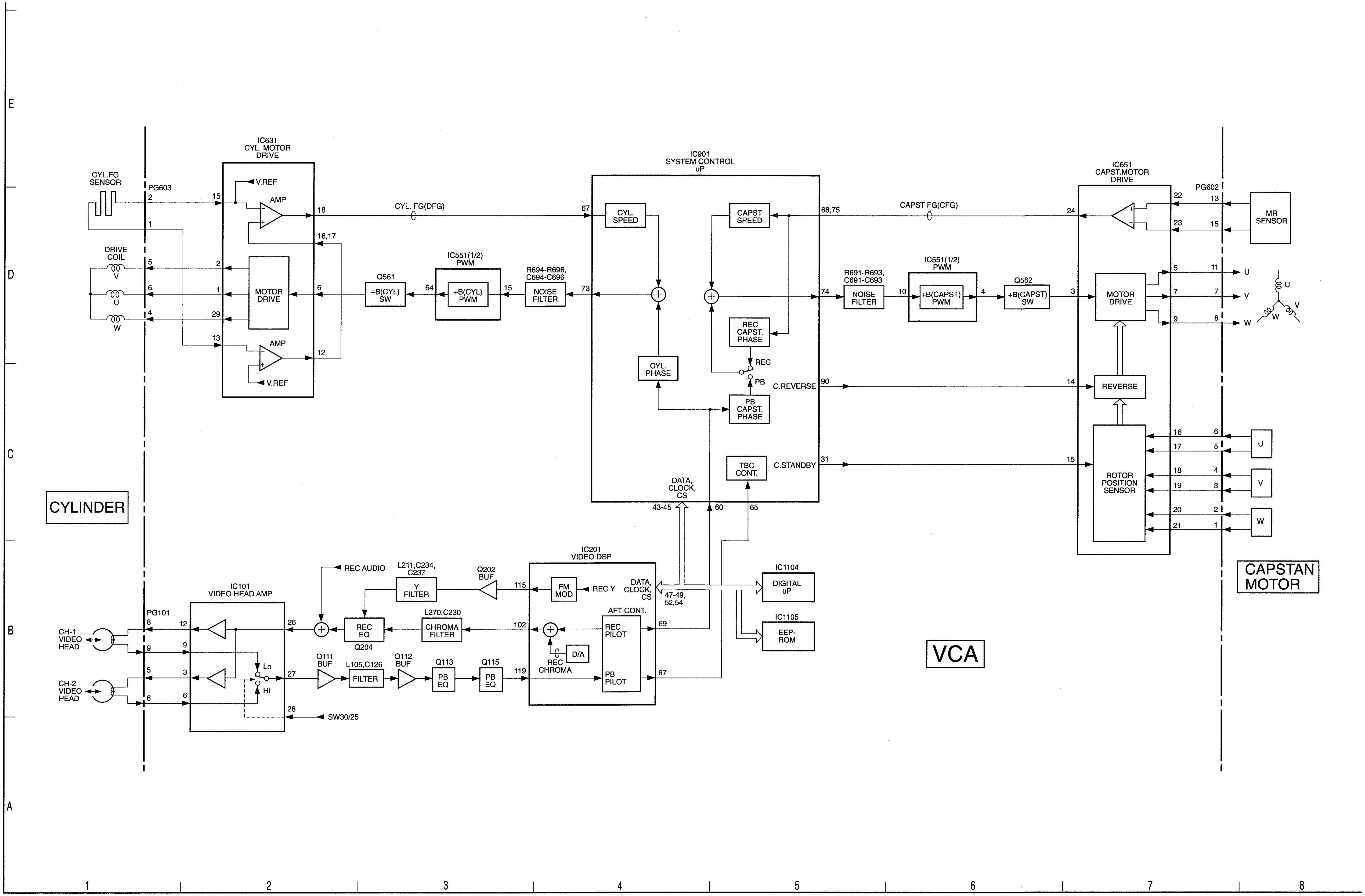

LENS
IC1001
CCD SENSOR
IC202
CDS/AGC & A/D CONV.
CDS/ AGC
A/D CONV.
SENSOR DRIVE
IC203
IC201
VIDEO DSP
Y/CHROMA SIGNAL PROCESS
PULSE GEN.
LCD DRIVE PULSE GEN
R/G/B SIGNAL PROCESS
REC Y PROCESS
REC/PB CHROMA PROCESS
PB Y PROCESS
ATF
REC Y
REC CHROMA
CHROMA
PB Y
PB FM
Y
REC AUDIO
REC FM
PB FM
IC101
VIDEO HEAD AMP
CH-1 VIDEO HEAD
CH-2 VIDEO HEAD
[TYPE 768,765,665,565]
IC1401
IC1403
H-MOVE
GYRO AMP
IC1402
V-MOVE
SE
PB CHROMA
DATA, CLOCK, CS
IC1104 DIGITAL uP
DATA, CLOCK, CS
OSD DATA
IC301
VIDEO AMP
[Except for TYPE 660,368,360]
IC350
RGB AMP
R/G/B
LCD UNIT
BACK LIGHT
LCD
DRIVE PULSE
EVF VIDEO
EVF VIDEO
EVF UNIT
Y
CHROMA
CON
[TYPE 765,665]
IC461S
SPEAKER AMP
SPEAKER
[Except for TYPE 660,368,360]
VIDEO
IC401
AUDIO PROCESS
PB AUDIO
EXT MIC-L
EXT MIC-R
[TYPE 768,565,563]
[TYPE 765,665]
EXT MIC TERMINAL
[TYPE 768,765,665,565,563]
[Except for TYPE 765,665,660,368,360]
S TERMINAL
[TYPE 768,765,665,660]
DATA, CLOCK
IC1201
IRIS
F-DET/ IRIS DRIVE
HALL DEVICE
IC1301
ZOOM
FOCUS
ZOOM MOTOR/ FOCUS MOTOR DRIVE
IC1111
D/A CONV.
IC1105
EEP-ROM
[TYPE765,665]
IC904
CHARA. GEN.
OSD DATA
VIDEO OUT
AUDIO-L
AUDIO-R
AUDIO OUT-L
AUDIO OUT-R
[TYPE 765,665]
JACK UNIT
IC631
CYL.MOTOR DRIVE
CYL.FG
AMP
MOTOR DRIVE
CYL.
CYL. MOTOR
CYL.FG
IC551
PWM
DATA, CLOCK, CS
IC901 SYSTEM CONTOL uP
IC902
BACK-UP DET
[Except for TYPE 765,665]
IC471S
AUDIO MATRIX
MIC-L
MIC-R
MIC-L
MIC-R
[TYPE 765,665]
MIC UNIT
CAPST.
MOTOR DRIVE
CAPST.FG
AMP
CAPSTAN MOTOR
CAPST.FG
IC651
CAPST.MOTOR DRIVE
IC671
LOADING
LOADING MOTOR DRIVE
VCA
E
D
C
B
A
1
2
3
4
5
6
7
8

2. MAIN CONTROL BLOCK DIAGRAM



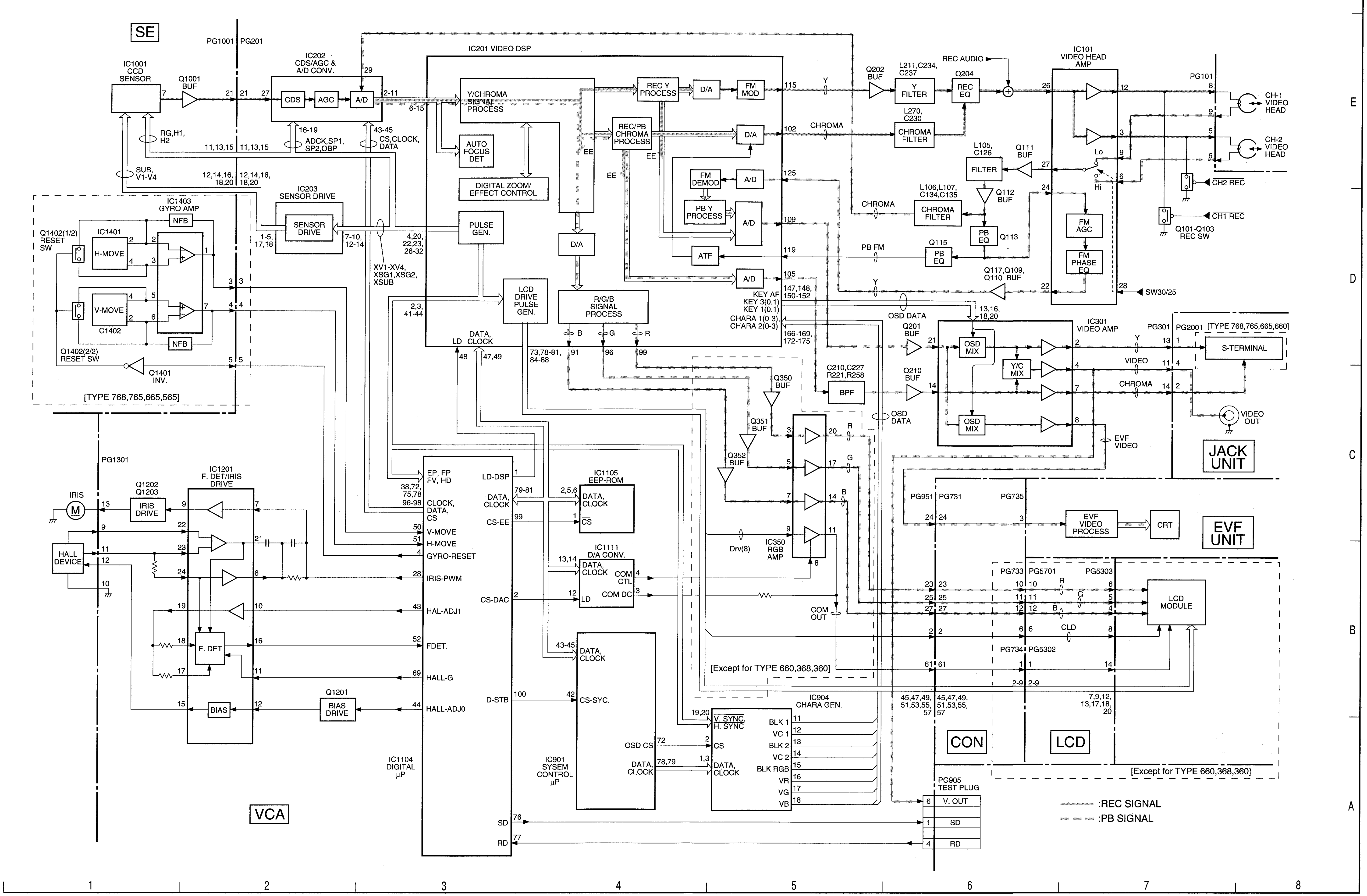
PG1301
IC1301
ZOOM MOTOR/FOCUS
MOTOR DRIVE
ZOOM
MOTOR
FOCUS
MOTOR
DRIVE
CONT.
ZD-PWMA
ZD OEB
ZD-PWMB
RD-PWMA
RD OEB
RD-PWMB
FOCUS
SENSOR
FUS-SENS
ZOM-SENS
FOCUS
LED
Q1301
LED DRIVE
FCUS-LED
ZOOM
SENSOR
ZOOM-LED
ZOOM
LED
SD
RD
PG905
TEST
PLUG
IC202
CSD/AGC &
A/D CONV.
CLK
DATA
CS
CLK-CSD
SDO-CSD
CS-CSD
PG903
Q701
TALLY
DRIVE
5V
LED701
TALLY
TALLY
Q570
Q571
LIGHT
SW
D. L. ON
SW702
CAM
SW701
VIDEO
DCL-AUTO
DCL-MAN
IR
RECEIVER
IC701
ZOOM SW
LCD-REV
LCD-OPEN
BLC
[TYPE 768,765]
PG552
DC
LIGHT
AUTO
DC
LIGHT
SWITCH
3V
ON
OFF
PG904
ZOOM T
ZOOM W
SUB POWER
(STANDBY)
REC
START
EJECT
PG951
PG731
SW768
BLC
SW773
LCD
OPEN
SW771
FOCUS-F
SW772
FOCUS-N
SW770
EFFECT
SW769
FADE
CON
LCD
REVERSE
SWITCH
PG736
LCD
Q5303
PG5701
PG733
REVERSE
CONT.
[Except for TYPE 660,368,360]
SW781
AE
SW764
MENU
SW763
TITLE
SW762
DATE
SW761
PLAY
SW767
REW
SW766
FF
SW765
STOP
[Except for TYPE 568,368,360]
IC1104
DIGITAL
µP
CS-EE
SCLK
SDO
SD1
CS-DAC
LD-DSP
SYS-CLK
SYS-RESET
CS-SYS
TEMP-ADJ
D1301
KEY 1
NEAR-SW
FAR-SW
IC1105
EEP-ROM
CS
SCK
SI
SO
IC1111
D/A CONV.
CLK
DI
LD
IC201
VIDEO
DSP
SDCK
S DATA
SDO
LD
MCK 2
RESET
IC904
CHARA.
GEN
DATA
CLOCK
CS
RESET
[TYPE 765,665]
IC401
AUDIO
PROCESS
DATA
CLOCK
IC902
BACK-UP
DET
RESET
DET
CS
DET
IC551
PWM
STBY 3
STBY
IC901
SYSTEM
CONTROL
µP
CAM+OSD
RESET
DSP RESET
C CLOCK
C-S DATA
S-C DATA
CS-SYS
CAM SW
WAKE-UP
VCR SW
REMOCON
REC START
EJECT
VCR KEY 2
VCR KEY 1
OSD CS
CLOCK
D. OUT
SYSTEM RESET
V-DET
VCR ON
LOAD
UNLOAD
TRACK ADJ.
TEST/NOR
RSS
RST
ESS
EST
END LED
STAGE
XTAL OUT
XTAL IN
CASSETTE-SW
ME/MP
M-SW 0
M-SW 1
M-SW 2
TEX IN
TEX OUT
Q901
Q902
RESET
PULSE
GEN.
IC671
LOADING
MOTOR DRIVE
DECODE
PG604
LOADING
MOTOR
PG601
TRK ADJ.
T. PROG
TEST PLUG
PG901
SUPPLY REEL SENSOR
TAKE-UP REEL SENSOR
SUPPLY END SENSOR
TAKE-UP END SENSOR
Q905
END LED
DRIVE
END LED
STAGE
REC INH
Hi8MP
ME/MP
X901
12MHz
X902
32kHz
PG902
MECHANISM
STATE
(MODE)
SWITCH
VCA
A
B
C
D
E
1
2
3
4
5
6
7
8

3. SERVO BLOCK DIAGRAM

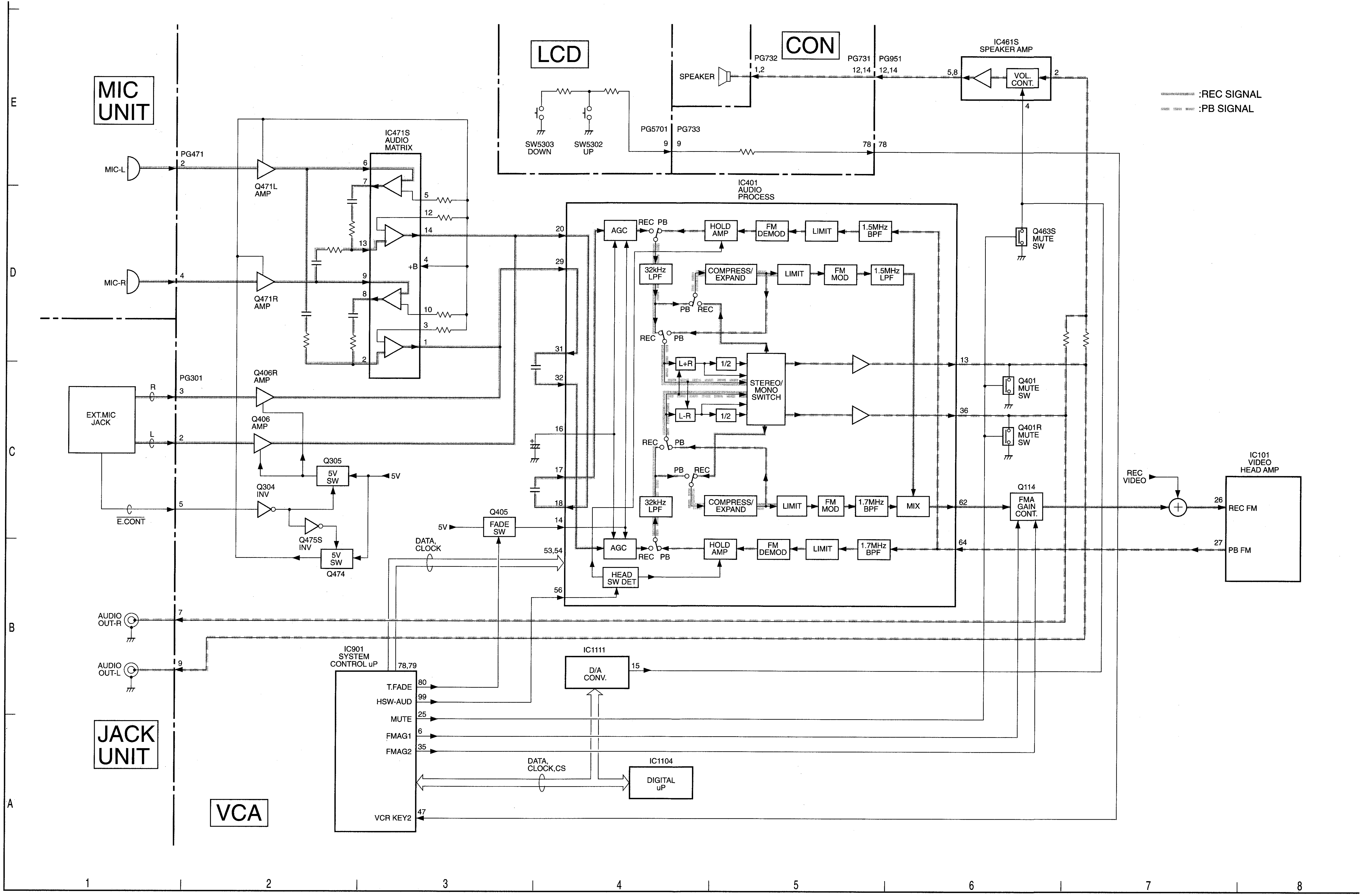


CYLINDER
CYL.FG SENSOR
PG603
DRIVE COIL
V
U
W
IC631 CYL. MOTOR DRIVE
V.REF
AMP
MOTOR DRIVE
CYL. FG(DFG)
16,17
Q561
+B(CYL) SW
IC551(1/2) PWM
+B(CYL) PWM
R694-R696, C694-C696
NOISE FILTER
IC901 SYSTEM CONTROL uP
CYL. SPEED
CYL. PHASE
CAPST SPEED
REC CAPST. PHASE
PB CAPST. PHASE
REC
PB
TBC CONT.
C.REVERSE
C.STANDBY
DATA, CLOCK, CS
43-45
CAPST FG(CFG)
68,75
R691-R693, C691-C693
NOISE FILTER
IC551(1/2) PWM
+B(CAPST) PWM
Q562
+B(CAPST) SW
IC651 CAPST.MOTOR DRIVE
MOTOR DRIVE
REVERSE
ROTOR POSITION SENSOR
PG602
MR SENSOR
U
V
W
CAPSTAN MOTOR
VCA
CH-1 VIDEO HEAD
CH-2 VIDEO HEAD
PG101
IC101 VIDEO HEAD AMP
Lo
Hi
SW30/25
REC AUDIO
REC EQ
Q204
L211,C234, C237
Y FILTER
Q202 BUF
L270,C230
CHROMA FILTER
Q111 BUF
L105,C126
FILTER
Q112 BUF
Q113
PB EQ
Q115
PB EQ
IC201 VIDEO DSP
FM MOD
REC Y
DATA, CLOCK, CS
47-49, 52,54
AFT CONT.
REC PILOT
PB PILOT
D/A
REC CHROMA
IC1104 DIGITAL uP
IC1105 EEP-ROM
E
D
C
B
A
1
2
3
4
5
6
7
8

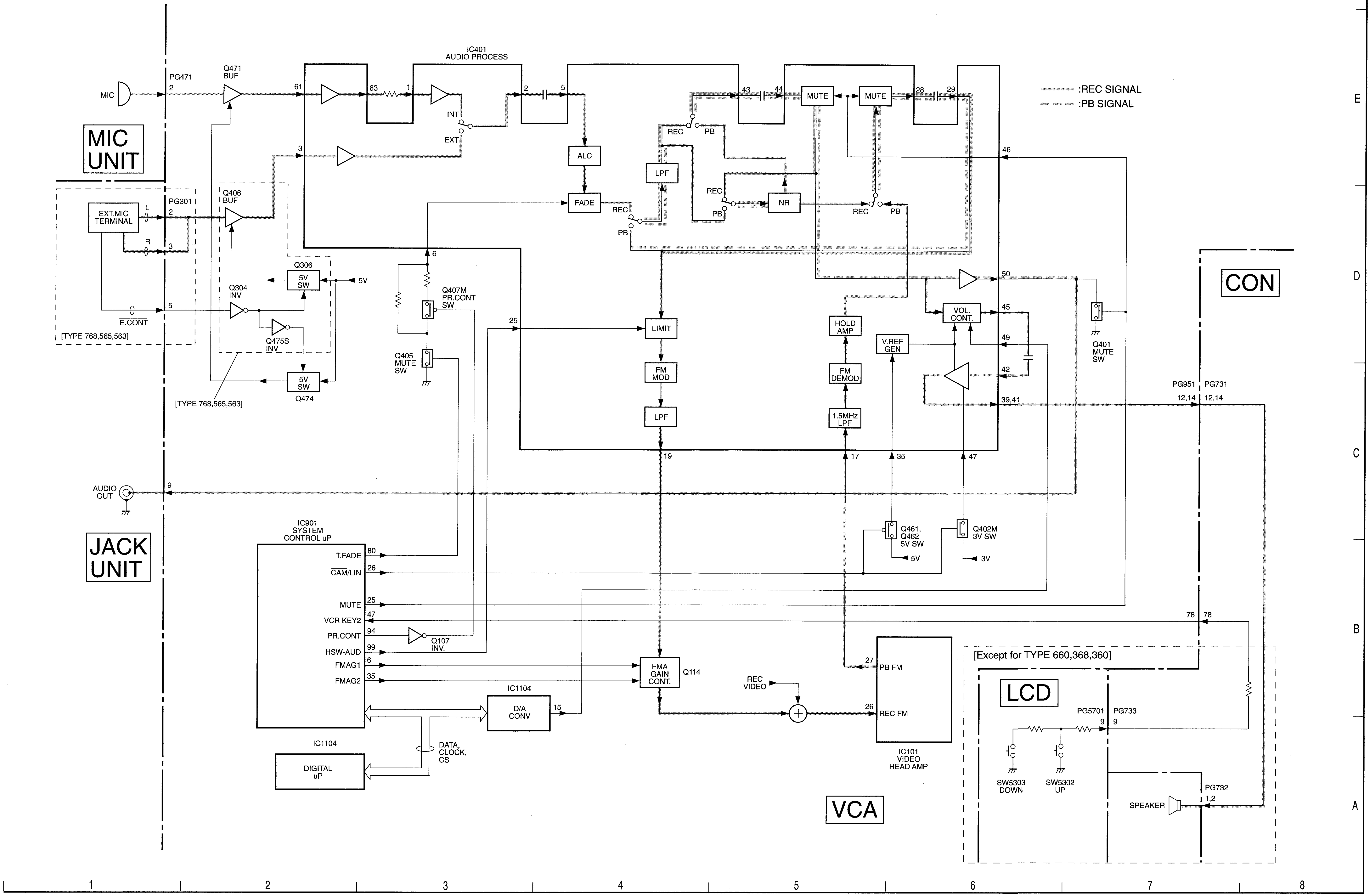
4. CAMERA & VIDEO PROCESS BLOCK DIAGRAM


SE
PG1001 PG201
IC1001 CCD SENSOR
Q1001 BUF
IC202 CDS/AGC & A/D CONV.
CDS
AGC
A/D
RG,H1, H2
SUB, V1-V4
ADCK,SP1, SP2,OBP
CS,CLOCK, DATA
IC203 SENSOR DRIVE
SENSOR DRIVE
XV1-XV4, XSG1,XSG2, XSUB
IC1403 GYRO AMP
NFB
IC1401
H-MOVE
V-MOVE
IC1402
Q1402(1/2) RESET SW
Q1402(2/2) RESET SW
Q1401 INV.
[TYPE 768,765,665,565]
IC201 VIDEO DSP
Y/CHROMA SIGNAL PROCESS
AUTO FOCUS DET
DIGITAL ZOOM/ EFFECT CONTROL
PULSE GEN.
LCD DRIVE PULSE GEN.
REC Y PROCESS
REC/PB CHROMA PROCESS
D/A
FM MOD
FM DEMOD
PB Y PROCESS
A/D
ATF
R/G/B SIGNAL PROCESS
EE
KEY AF
KEY 3(0.1)
KEY 1(0.1)
CHARA 1(0-3), CHARA 2(0-3)
LD DATA, CLOCK
Y
CHROMA
Q202 BUF
L211,C234, C237
Y FILTER
L270, C230
CHROMA FILTER
REC AUDIO
Q204
REC EQ
IC101 VIDEO HEAD AMP
PG101
CH-1 VIDEO HEAD
CH-2 VIDEO HEAD
L105, C126
FILTER
Q111 BUF
Lo
Hi
L106,L107, C134,C135
Q112 BUF
CHROMA FILTER
PB EQ
Q113
Q115
PB FM
FM AGC
FM PHASE EQ
Q117,Q109, Q110 BUF
SW30/25
CH2 REC
CH1 REC
Q101-Q103 REC SW
OSD DATA
Q201 BUF
IC301 VIDEO AMP
OSD MIX
Y/C MIX
PG301 PG2001 [TYPE 768,765,665,660]
S-TERMINAL
VIDEO
CHROMA
VIDEO OUT
JACK UNIT
C210,C227 R221,R258
BPF
Q210 BUF
Q350 BUF
Q351 BUF
Q352 BUF
IC350 RGB AMP
Drv(8)
EVF VIDEO
PG951 PG731
PG735
EVF VIDEO PROCESS
CRT
EVF UNIT
PG733 PG5701 PG5303
LCD MODULE
CLD
PG734 PG5302
COM OUT
[Except for TYPE 660,368,360]
CON
LCD
PG905 TEST PLUG
V. OUT
SD
RD
PG1301
IC1201 F. DET/IRIS DRIVE
Q1202 Q1203
IRIS DRIVE
IRIS
M
HALL DEVICE
F. DET
BIAS
Q1201
BIAS DRIVE
IC1104 DIGITAL µP
EP, FP FV, HD
CLOCK, DATA, CS
V-MOVE
H-MOVE
GYRO-RESET
IRIS-PWM
HAL-ADJ1
FDET.
HALL-G
HALL-ADJ0
LD-DSP
DATA, CLOCK
CS-EE
CS-DAC
D-STB
SD
RD
IC1105 EEP-ROM
DATA, CLOCK
CS
IC1111 D/A CONV.
COM CTL
COM DC
LD
IC901 SYSEM CONTROL µP
CS-SYC.
OSD CS
IC904 CHARA GEN.
V. SYNC, H. SYNC
BLK 1
VC 1
BLK 2
VC 2
BLK RGB
VR
VG
VB
VCA
:REC SIGNAL
:PB SIGNAL
1
2
3
4
5
6
7
8
A
B
C
D
E

5. AUDIO -STEREO- BLOCK DIAGRAM [TYPE 765/665]

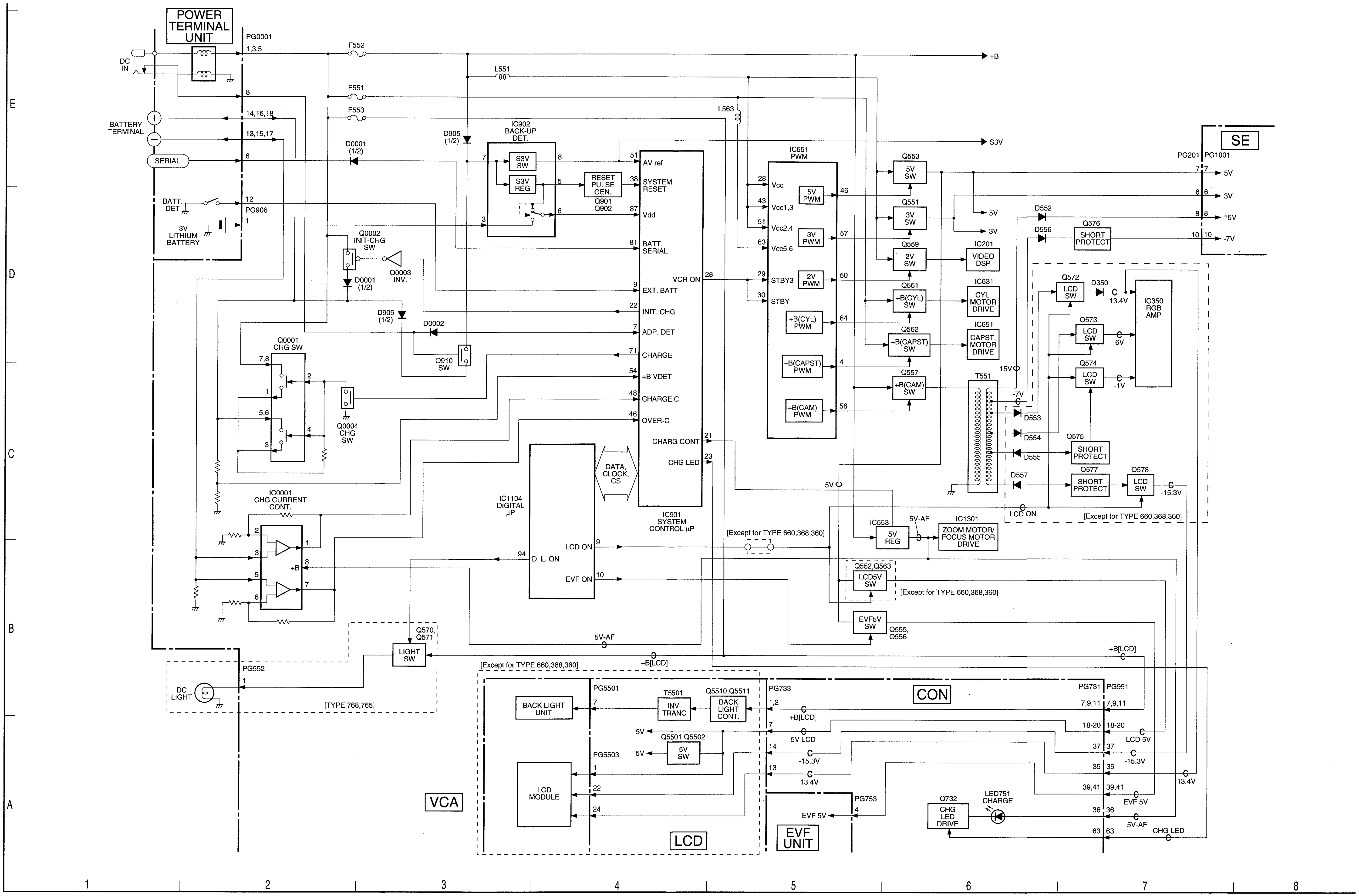

E
D
C
B
A
1
2
3
4
5
6
7
8
MIC UNIT
JACK UNIT
VCA
LCD
CON
MIC-L
MIC-R
PG471
Q471L AMP
Q471R AMP
IC471S AUDIO MATRIX
+B
EXT.MIC JACK
R
L
E.CONT
PG301
Q406R AMP
Q406 AMP
Q305
5V SW
5V
Q304 INV
Q475S INV
Q474
AUDIO OUT-R
AUDIO OUT-L
SW5303 DOWN
SW5302 UP
PG5701
PG733
PG732
PG731
PG951
SPEAKER
IC461S SPEAKER AMP
VOL. CONT.
Q463S MUTE SW
IC401 AUDIO PROCESS
AGC
REC PB
HOLD AMP
FM DEMOD
LIMIT
1.5MHz BPF
32kHz LPF
COMPRESS/ EXPAND
FM MOD
1.5MHz LPF
L+R
L-R
1/2
STEREO/ MONO SWITCH
1.7MHz BPF
MIX
HEAD SW DET
Q405 FADE SW
DATA, CLOCK
Q401 MUTE SW
Q401R MUTE SW
Q114 FMA GAIN CONT.
REC VIDEO
IC101 VIDEO HEAD AMP
REC FM
PB FM
IC901 SYSTEM CONTROL uP
T.FADE
HSW-AUD
MUTE
FMAG1
FMAG2
VCR KEY2
IC1111 D/A CONV.
IC1104 DIGITAL uP
DATA, CLOCK,CS
:REC SIGNAL
:PB SIGNAL

6. AUDIO -MONAURAL- BLOCK DIAGRAM [TYPE 768/660/568/565/563/368/360]



:REC SIGNAL
:PB SIGNAL
MIC UNIT
JACK UNIT
CON
LCD
VCA
MIC
PG471
2
Q471
BUF
EXT.MIC TERMINAL
L
R
PG301
2
3
5
E.CONT
[TYPE 768,565,563]
Q406
BUF
Q306
5V SW
5V
Q304
INV
Q475S
INV
5V SW
Q474
[TYPE 768,565,563]
IC401
AUDIO PROCESS
61
63
1
2
5
3
INT
EXT
ALC
FADE
REC
PB
LPF
REC
PB
43
44
MUTE
MUTE
28
29
REC
PB
NR
REC
PB
46
6
Q407M
PR.CONT
SW
Q405
MUTE
SW
25
LIMIT
FM MOD
LPF
19
HOLD AMP
FM DEMOD
1.5MHz LPF
V.REF GEN
17
35
47
50
VOL. CONT.
45
49
42
39,41
Q401
MUTE
SW
PG951
12,14
PG731
12,14
AUDIO OUT
9
IC901
SYSTEM
CONTROL uP
T.FADE
80
CAM/LIN
26
MUTE
25
VCR KEY2
47
PR.CONT
94
Q107
INV.
HSW-AUD
99
FMAG1
6
FMAG2
35
IC1104
D/A CONV
15
IC1104
DIGITAL uP
DATA, CLOCK, CS
FMA GAIN CONT.
Q114
REC VIDEO
Q461, Q462
5V SW
5V
Q402M
3V SW
3V
27
PB FM
26
REC FM
IC101
VIDEO
HEAD AMP
78
78
[Except for TYPE 660,368,360]
PG5701
9
PG733
9
SW5303
DOWN
SW5302
UP
SPEAKER
PG732
1,2
E
D
C
B
A
1
2
3
4
5
6
7
8

7. POWER BLOCK DIAGRAM



POWER TERMINAL UNIT
PG0001
DC IN
1,3,5
8
BATTERY TERMINAL
14,16,18
13,15,17
SERIAL
6
BATT. DET
12
PG906
3V LITHIUM BATTERY
1
F552
L551
F551
F553
L563
+B
S3V
D905 (1/2)
IC902 BACK-UP DET.
S3V SW
S3V REG
RESET PULSE GEN.
Q901 Q902
D0001 (1/2)
Q0002 INIT-CHG SW
Q0003 INV.
D0002
Q910 SW
Q0001 CHG SW
Q0004 CHG SW
IC0001 CHG CURRENT CONT.
51 AV ref
38 SYSTEM RESET
87 Vdd
81 BATT. SERIAL
9 EXT. BATT
22 INIT. CHG
7 ADP. DET
71 CHARGE
54 +B VDET
48 CHARGE C
46 OVER-C
VCR ON 28
CHARG CONT 21
CHG LED 23
IC901 SYSTEM CONTROL µP
DATA, CLOCK, CS
IC1104 DIGITAL µP
94 D. L. ON
LCD ON 9
EVF ON 10
IC551 PWM
28 Vcc
43 Vcc1,3
51 Vcc2,4
63 Vcc5,6
29 STBY3
30 STBY
5V PWM 46
3V PWM 57
2V PWM 50
+B(CYL) PWM 64
+B(CAPST) PWM 4
+B(CAM) PWM 56
Q553 5V SW
Q551 3V SW
Q559 2V SW
Q561 +B(CYL) SW
Q562 +B(CAPST) SW
Q557 +B(CAM) SW
5V
3V
IC201 VIDEO DSP
IC631 CYL. MOTOR DRIVE
IC651 CAPST. MOTOR DRIVE
T551
15V
-7V
D552
D556
Q576 SHORT PROTECT
D553
D554
D555
D557
Q575 SHORT PROTECT
Q577 SHORT PROTECT
Q578 LCD SW
-15.3V
Q572 LCD SW
D350
13.4V
Q573 LCD SW
6V
Q574 LCD SW
-1V
IC350 RGB AMP
LCD ON
[Except for TYPE 660,368,360]
SE
PG201 PG1001
7 7 5V
6 6 3V
8 8 15V
10 10 -7V
IC553 5V REG
5V-AF
IC1301 ZOOM MOTOR/ FOCUS MOTOR DRIVE
Q552,Q563 LCD5V SW
EVF5V SW Q555, Q556
Q570, Q571 LIGHT SW
PG552
DC LIGHT
[TYPE 768,765]
+B[LCD]
VCA
PG5501
BACK LIGHT UNIT
T5501 INV. TRANC
Q5510,Q5511 BACK LIGHT CONT.
Q5501,Q5502 5V SW
PG5503
LCD MODULE
1
22
24
LCD
PG733
1,2
7
14
13
5V LCD
PG753
EVF 5V
4
EVF UNIT
CON
PG731 PG951
7,9,11
18-20
37
35
39,41
36
63
LCD 5V
EVF 5V
Q732 CHG LED DRIVE
LED751 CHARGE
CHG LED
E
D
C
B
A
1
2
3
4
5
6
7
8

MICROPROCESSOR PIN FUNCTION TABLES

1. Digital Microprocessor (IC1104: D-µP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	O	(Pulse)	LD-DSP	Activates data communications with IC201 (VIDEO DSP).
2	O	(Pulse)	CS-DAC	Activates data communications with IC1111 (D/A CONV.).
3	-----	-----	----------	Not used. Open.
4	O	Hi	GYRO-RST	Drives Q1402 (GYRO RESET) via Q1401 (INV.) to reset IC1401 (V-MOVE) and IC1402 (H-MOVE).
5	-----	-----	CEON	Not used. Open.
6	-----	-----	CHARGE	Not used. Open.
7	I	Hi/Lo	LCD-OPEN	Input to discriminate whether of LCD monitor is opened or closed. Hi: Close, Lo: Open.
8	I	Hi/Lo	LCD-REV	Input to discriminate whether of LCD monitor is turned over.
9	O	Hi	LCD-ON	LCD power control output. Outputs "Hi" when power is turned on.
10	O	Hi	EVF-ON	Electronic viewfinder (EVF) power control output. Outputs "Hi" when power is turned on.
11	-----	-----	----------	Not used. Open.
12	-----	-----	VCC	3V power input.
13	I	Lo	BLC	BLC switch detection inputs.
14	-----	-----	GND	Ground.
15	I	Lo	CLOSS-U	Not used.
16	I	Lo	CLOSS-D	
17	I	Lo	CLOSS-L	
18	I	Lo	CLOSS-R	
19	I	Lo	ENTER	
20	-----	-----	----------	Not used. Open.
21	-----	-----	----------	
22	-----	-----	----------	
23	-----	-----	XTAL-CTL	
24	-----	-----	----------	
25	-----	-----	CHECK8	
26	O	Lo	TALLY LED	Drives LED701 (TALLY) via Q701 (TALLY DRIVE) to turn on during recording.
27	-----	-----	REM-CTRL	Not used. Open.
28	-----	(Pulse)	IRIS PWM	Iris motor drive output .
29	-----	-----	LD JIG	Not used. Open.
30	O	(Pulse)	ZDOEB MOTOR DRIVE).	Activates zoom drive data communications with IC1301 (FOCUS MOTOR/ZOOM
31	O	(Pulse)	FOOEB	Activates focus drive data communications with IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
32	O	(Pulse)	ZOOM-LED	Output pulses to drive the ZOOM LED in the lens block.
33	O	(Pulse)	FCUS-LED	Output pulses to drive the FOCUS LED in the lens block.
34	O	PWM	ZD-PWMB	Outputs zoom motor drive signal to IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
35	O	PWM	ZD-PWMA	
36	O	PWM	RD-PWMB	Outputs focus motor drive signal to IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
37	O	PWM	RD-PWMA	
38	I	(Pulse)	FV	Receives the vertical sync pulses that detect the iris detection area, from IC201 (VIDEO DSP).
39	I	(Pulse)	ZOM-SENS	Zoom motor position detection input.
40	I	(Pulse)	REM-IR	Not used. Connect to ground.
41	I	(Pulse)	FUS-SENS	Focus motor position detection input.
42	-----	-----	GND	Ground.
43	O	0V-5V	HAL-ADJ.1	Controls the offset voltage of IC1201 (F.DET/IRIS DRIVE).
44	O	0V-5V	HAL-ADJ0	Drives bias generator in IC1201 (F.DET/IRIS DRIVE) via Q1201 (BIAS DRIVE) to control the bias voltage of the Hall devices.
45	-----	-----	----------	Not used. Open.
46	I	0V-5V	ZOOM-SW	Zoom (TELE/WIDE) switch detection inputs.
47	I	0V-3V	KEY2	Not used.
48	I	0V-3V	KEY1	Operation switch detection input (FADE and D.EFFECTS switche)
49	I	0V-3V	TEMP-ADJ	Temperature change detection input. Detects variations in the forward voltage at the connected diode to correct the back-focus.
50	I	0V-3V	V-GYRO	Receives vertical camera shake correction data from IC1401 (V-MOVE) via IC1403 (GYRO AMP).

Pin No.	I/O	Active Level	Abbreviation	Function
51	I	0V-3V	H-GYRO	Receives horizontal camera shake correction data from IC1402 (H-MOVE) via IC1403 (GYRO AMP).
52	I	0V-3V	FDET	F-value detection input. Receives the F.DET voltage detected by IC1201 (F.DET/ IRIS DRIVE) and compares this with the reference voltage input via pin 53 to detect the F-value.
53	-----	-----	AVCC	Reference 3V power input.
54	-----	-----	AVCC	A/D reference voltage input (connected to 3V power supply).
55	-----	-----	VCC	3V power input.
56	-----	-----	VCC	
57	-----	-----	----------	Not used. Open.
58	-----	-----	----------	
59	I	Lo	SYS-REST	Reset signal input from IC901 (S-µP).
60	-----	-----	VCC	3V power input.
61	-----	-----	STBY	Not used. Connect to 3V power supply.
62	-----	-----	VCC	3V power input.
63	-----	-----	----------	Not used. Open.
64	-----	-----	GND	Grounded.
65	I	(Pulse)	SYS-CLOCK	Inputs control clock pulses from IC201 (VIDEO DISITAL PROCESS).
66	-----	-----	---------	Not used. Connect to 3V power supply.
67	-----	-----	VCC	3V power input.
68	-----	-----	----------	Not used. Open.
69	O	Hi	HALL-G	Controls the amplification (gain of Hall device) of IC1201 (F.DET/IRIS DRIVE).
70	-----	-----	----------	Not used. Open.
71	-----	-----	----------	
72	I	(Pulse)	HD	Input horizontal sync pulse from IC201 (VIDEO DIGITAL PROCESS).
73	-----	-----	SHUT-CTL	Not used. Open.
74	-----	-----	STROBE	
75	I	(Pulse)	FP	Input field discrimination pulse from IC201 (VIDEO DIGITAL PROCESS).
76	O	(Pulse)	SD (232C)	Used for initial settings and adjustment. For data communications with personal computer.
77	I	(Pulse)	RD (232C)	
78	I	(Pulse)	EP3/AFLH	Receives pulses which discriminate the iris detection area.
79	O	(Pulse)	SDO	For data communications with IC201 (VIDEO DSP), IC1105 (EEP-ROM), IC901(SYSTEM CONTROL µP) and IC1111 (D/A CONV.).
80	I	(Pulse)	SDI	
81	O	(Pulse)	SCLK	
82	-----	-----	----------	Not used. Open.
83	-----	-----	----------	
84	-----	-----	----------	
85	-----	-----	----------	
86	I	Hi	DCL-AUTO	Input to detect the AUTO position of DC light switch. If IC1104 detects the AUTO position (Hi), it switches the voltage at pin 94 according to the surrounding brightness.
87	-----	-----	----------	Not used. Open.
88	-----	-----	----------	Not used. Connected to ground.
89	-----	-----	LIGHT-SW	Input to detect the ON position of DC light switch. If IC1104 detects the ON position (Hi), it sets the voltage at pin 94 to "HI".
90	I	Hi	PB-HIBAD	Playback mode detection input. IC1104 receives the playback mode detection signal sensed by IC201 (VIDEO DSP) and instructs IC904 (CHARA. GEN.) to generate the display signals and also transfers the operation mode data toIC201. Open for models with which only normal tapes are used.
91	-----	-----	----------	Not used. Open.
92	I	Lo	NEAR-SW	Manual focus switche (FOCUS-N/FOCUS-F) detection inputs.
93	I	Lo	FAR-SW	
94	-----	-----	LIGHT-ON	DC light power control output. This outputs "Hi" according to the voltage input to pin 86 or 89, and drive Q570 and Q571 to turn the DC light on.
95	-----	-----	SCRN-ON	Not used. Open.
96	O	(Pulse)	CLK-CDS	Transfer data to IC202 (CDS/AGC & A/D CONV.).
97	O	(Pulse)	SDO-CDS	
98	O	(Pulse)	CS-CDS	Activates data communications with IC202 (CDS/AGC & A/D CONV.).
99	O	(Pulse)	CS-EE	Activates data communications with IC1105 (EEP-ROM).
100	O	(Pulse)	CS-SYS	Activates data communications with IC901 (SYSTEM CONTROL µP).

2. System Control Microprocessor (IC901: S-µP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	O	Lo	CH2. REC[Lo]	Output the signals to select the video heads for recording. Go "Lo" in the corresponding channel period during recording.
2	O	Lo	CH1. REC[Lo]	
3	O	(Pulse)	SW30[Lo]	Antiphase head switching pulse output.
4	O	(Pulse)	SW30(SW25)	Head switching pulse output.
5	I	Hi	TEST/NOR[Lo]	Test program start detection input. A test program is executed when "Hi" is input.
6	O	Hi	FMAG1	Q114 (FM AGC) control outputs. Q114 aligns the REC AUDIO signal (FMA) level with the REC VIDEO signal level that varies.
35	O	Hi	FMAG2	
7	I	Hi	ADP DET	AC adapter connection detection input.
8	I	Hi/Lo	PRE V	Lithium battery attachment and voltage detection input. (Not attached or less than 2.5V: Hi, Attathed: Lo)
9	I	Lo	EXT BATT	Battery attachment detection input.
10	I	0V-3V	M-SW2	Mechanism state switch position (mode) detection input.
11	I	0V-3V	M-SW1	
12	I	0V-3V	M-SW0	
13	I	Lo	CAM SW[Lo]	Power switch detection input. "Lo" is input during recording (CAMERA mode).
14	I	Lo	VCR SW[Lo]	Power switch detection input. "Lo" is input during playback (PLAY mode).
15	I	Lo	EJECT SW[Lo]	Eject switch detection input. When "Lo" is input, the camera/recorder performs the eject operation even when the power is turned off (standby release input).
16	I	Lo	STAGE[Lo]	Cassette holder open/close detection input. "Lo" is input when the cassette holder is closed.
17	I	Hi/Lo	ME/MP[Lo]	Input to discriminate the type of tape. Hi: ME (metal evaporated) tape, Lo: MP (metal particle) tape.
18	I	Lo	WAKE UP[Lo]	Standby release input. When the camera power is turned on, "Lo" is input to release the standby mode. IC901 detects the inputs of each switch to start operation.
19	I	Lo	REC START[Lo]	Recording start/stop switch detection input.
20	-----	-----	----------	Not used. Open.
21	O	Hi	CHARGE CONT	Controls IC553 (5V REG) to generate autofocus and charge circuits power supply 5V(AF).
22	O	Hi	INIT CHG	Charge mode control output. Outputs "Hi" when the voltage of the attached battery is 5.8V or less, to set the camcorder to the initial charge mode.
23	O	Hi	CHG LED	Outputs "Hi" during charging to control Q732 (CHG LED DRIVE) so that the CHARGE LED (LED751) lights.
24	-----	-----	----------	Not used.
25	O	Hi	MUTE	Audio muting output. Outputs "Hi" to mute sound.
26	O	Hi/Lo	CAM[Lo]/LINE	Video processor mode control output. Outputs "Lo" during camera recording and "Hi" with an external (line) signal.
27	O	(Pulse)	END LED	End LED drive output. Outputs pulses of approx. 50Hz when power is turned on.
28	O	Hi	VCR ON	Power control output. Outputs "Hi" when power is turned on.
29	O	Lo	CAM+OSD RESET[Lo]	Outputs "Lo" with power on and is set to open with power off to initialize IC1104 (DIGITAL µ P) and IC904 (CHARA. GEN.).
30	O	(Pulse)	CEVF-CS	Not used.
31	O	Hi	C.STANDBY	Capstan motor power control output.
32	O	Hi/Lo	ZONE. OFF	Not used.
33	O	Hi	Hi-8 ET	Not used.
34	O	Lo	DSP RESET [Lo]	Outputs "Lo" with power on and is set to open with power off to initialize IC201 (VIDEO DSP).
36	-----	-----	----------	Not used. Open.
37	-----	-----	GND	Grounded.
38	I	Lo	SYSTEM RESET[Lo]	Microprocessor reset input. "Lo" input resets the microprocessor.
39	-----	-----	GND	Grounded.
40	O	(Pulse)	XTAL OUT 12MHz	Drive X901 to generate 12MHz main clock pulses.
41	I	(Pulse)	EXTAL IN 12MHz	

Pin No.	I/O	Active Level	Abbreviation	Function
42	I	(Pulse)	CS-SYC(CAM)	Activates data communications with IC1104 (DIGITAL μP).
43	I	(Pulse)	C-S DATA(CAM)	For data communications with IC201 (VIDEO DSP), IC1105 (EEP-ROM), IC1104 (DIGITAL μP) and IC1111 (D/A CONV.).
44	O	(Pulse)	S-C DATA(CAM)	
45	I	(Pulse)	C LOCK(CAM)	
46	I	0V-3V	OVER-C	Overcurrent detection input during charging. Changes the gain during charging to monitor the charge current.
47	I	0V-3V	VCR KEY2	VCR operation switch detection input (PLAY, DATE, TITLE and MUTE etc.).
48	I	0V-3V	CHARGE C	Charge current detection input. Monitors the charge current during charging.
49	I	0V-3V	BATTERY	Input to detect the battery remaining level.
50	-----	-----	GND	Grounded.
51	I	-----	AVref	Reference voltage input. Connect to 3V line.
52	-----	-----	AVdd	3V power input.
53	I	Hi/Lo	CASETTE-SW	Erase prevention tab and Hi-8/Normal of the casette detection input.
54	I	0V-3V	+B VDET	Battery voltage detection input. Monitors the attached battery voltage.
55	I	Lo	EXT MIC	External microphone connect detection input.
56	I	0V-3V	VCR KEY1	VCR operation switch detection input (REW, F.FWD and STOP).
57	I	0V-3V	TRACK ADJ.	For the connection of a tracking control for adjustment. When an ATF-R jig is connected to PG601 (test plug), the variable resistor on the ATF-R jig can be used as a tracking control.
58	I	(Pulse)	EST	Take-up tape end detection input.
59	I	(Pulse)	ESS	Supply tape end detection input.
60	I	(Pulse)	ENV DET	Playback (PB) FM signal input.
61	I	(Pulse)	RSS	Supply/take-up reel sensor inputs. Used to calculate the remaining tape and to detect reel lock.
62	I	(Pulse)	RST	
63	-----	-----	GND	Grounded.
64	I	(Pulse)	C.SYNC	Composite sync signal input. The separated vertical sync signal is divided by two to generate the 1/2V.SYNC pulse which is used to control the cylinder speed during recording (reference signal).
65	I	(Pulse)	TBC CONT	Cylinder phase control signal input.
66	-----	-----	GND	Grounded.
67	I	(Pulse)	DFG	Cylinder FG (CYL. FG) pulse input. Controls the cylinder speed during recording and playback.
68	I	(Pulse)	CFG	Capstan FG (CAPST.FG) pulse input. Controls the capstan speed and used for counting of the linear time counter and recording restart control (assemble recording).
75	I	(Pulse)	CFG	
69	O	Hi	LOAD	Loading motor drive outputs.
70	O	Hi	UNLOAD	
71	O	Hi	CHARGE	Charge circuit control output. Outputs "Hi" during charging to activate the charge circuit.
72	O	(Pulse)	OSD CS	Activates communications with IC904 (CHARA. GEN.).
73	O	PWM	D.SPEED	Cylinder servo control outputs.
74	O	PWM	C.SPEED	Capstan servo control outputs.
76	I	Lo	V-DET[Lo]	Inputs whether a battery is attached or not. "Lo" is input when the battery is detached, to shift the microprocessor to the backup mode in which the data is saved.
77	I	Hi	DC900DET	Not used.
78	O	(Pulse)	D. OUT	For data communications with IC904 (CHARA. GEN.) and IC401 (AUDIO PROCESS (For stereo type)).
79	O	(Pulse)	CLOCK	
80	O	Hi	T.FADE	Rapid audio fading output. Outputs "Hi" when fading is started to fade the audio signal in rapidly.
81	I	Hi/Lo	BATT. SERIAL	Battery serial time detection input.
82	-----	-----	----------	Not used. Open.
83	I	(Pulse)	REMOCON	Remote operation signal input from the infrared receiver.
84	I	(Pulse)	32kHz TEX IN	Generate 32kHz sub-clock pulses.
85	O	(Pulse)	32kHz TX OUT	
86	-----	-----	GND	Ground.
87	-----	-----	Vdd	3V power input.
88	-----	-----	----------	Not used. Connected to 3V line.
89	-----	-----	----------	Not used. Open
90	O	Hi	C.REVERSE	Capstan motor reversing control output.

Pin No.	I/O	Active Level	Abbreviation	Function
91	O	Hi	REC	Output to control the video processor during recording.
92	O	Hi/Lo	PB	Output to control the video processor mode. Goes "Hi" during playback.
93	O	Hi	D.STANDBY	Cylinder motor start auxiliary output. Outputs "Hi" for 50 ms when the motor is started in the forward rotation direction.
94	O	Lo	PR.CONT	Preamp activation signal. Outputs"Hi" during playback to activate the preamp.
95	O	(Pulse)	HD	Artificial H. sync signal output.
96	O	(Pulse)	ADDV+ SQUELCH	Artificial V. sync signal + video muting signal output.
97	O	Hi/Lo	WIPE CONT	Output to select the display mode (normal or 16×9 (wide vision)).
98	O	Hi/Lo	LCD-HOLD	Controls the LCD control circuit operation mode.
99	O	(Pulse)	AUDIO30(25)	Outputs switching pulses to IC401 (AUDIO PROCESS).
100	O	Hi	FE CONT	Flying erase head oscillation control output .

CHAPTER 7 APPENDIX

1. SELF-DIAGNOSTIC FUNCTION

1. 1 Overview

The camera/recorder has the following self-diagnostic function.

- Occasional defect self-diagnostic function (A mode)
- Mechanical block self-diagnostic function (B mode)

Fig. 1-1 shows the self-diagnostic coverage range.
The self-diagnostic functions of the camera/recorder are engaged by the system control (S) μP (IC0901) which detects, memorizes and displays data related to defects in the mechanical block control system.

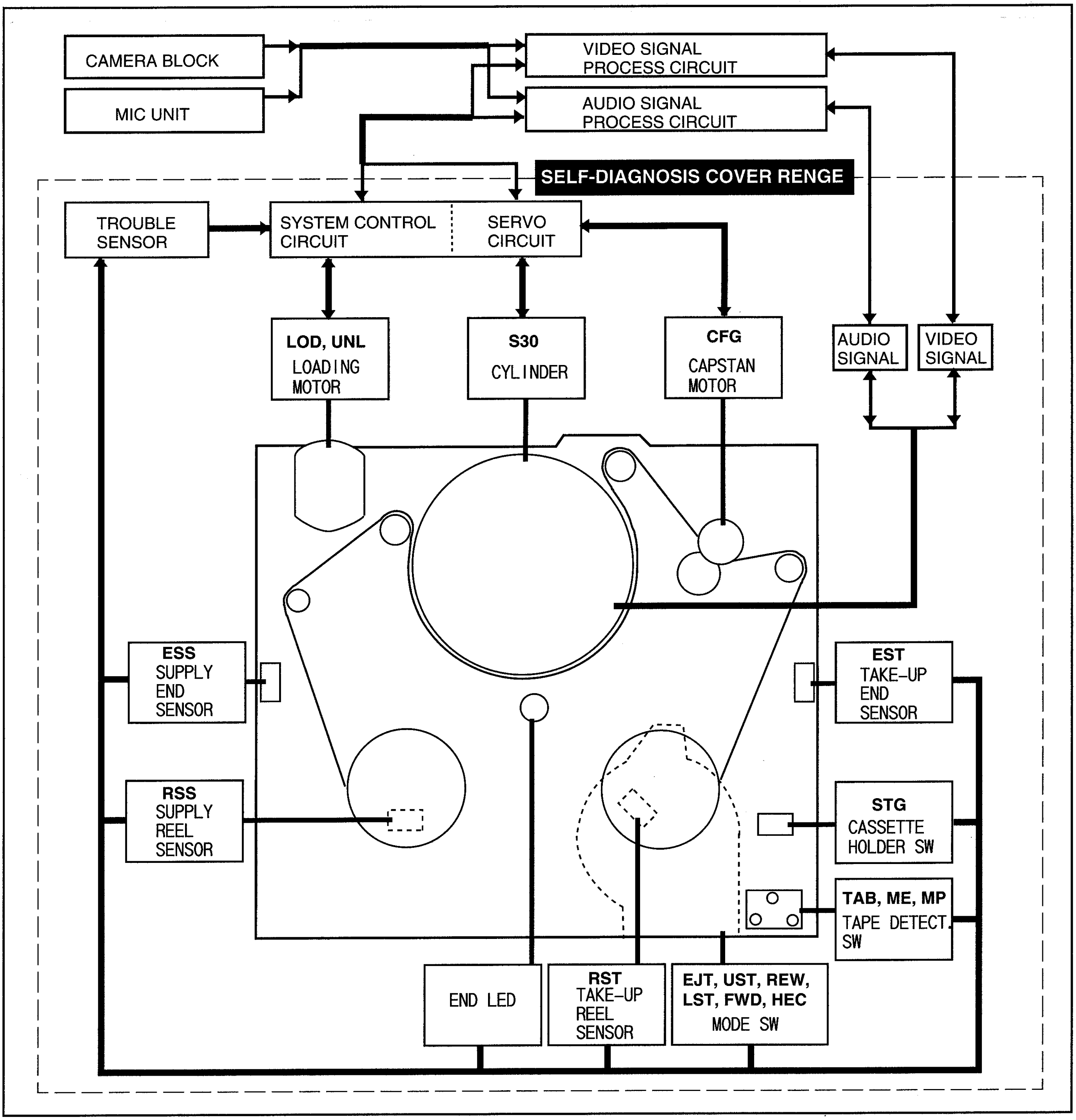

CAMERA BLOCK
MIC UNIT
VIDEO SIGNAL PROCESS CIRCUIT
AUDIO SIGNAL PROCESS CIRCUIT
SELF-DIAGNOSIS COVER RENGE
TROUBLE SENSOR
SYSTEM CONTROL CIRCUIT
SERVO CIRCUIT
LOD, UNL
LOADING MOTOR
S30
CYLINDER
CFG
CAPSTAN MOTOR
AUDIO SIGNAL
VIDEO SIGNAL
ESS
SUPPLY END SENSOR
RSS
SUPPLY REEL SENSOR
EST
TAKE-UP END SENSOR
STG
CASSETTE HOLDER SW
TAB, ME, MP
TAPE DETECT SW
END LED
RST
TAKE-UP REEL SENSOR
EJT, UST, REW, LST, FWD, HEC
MODE SW

Fig. 1-1 Self-Diagnostic Coverage Range

1.2 Details of Display/Detection and Applications

Table 1-1 summarizes the details of display/detection of the self-diagnostic functions and their applications.

Fig. 1-2 shows the operational processes of the self-diagnostic functions.

Table 1-1 Details of Display/Detection of Self-Diagnostic Functions and their Applications

	Occasional defect self-diagnostic function (A mode)	**Mechanical block self-diagnostic function (B mode)**
Details of display/ detection	The system control μP memorizes and displays the defect data. (If several defects have occurred, only the last defect detected is memorized.)	Displays the data for the defect that has occurred when the B mode is set.
Application	Used when the defective symptom is not reproduced during servicing.	Used to detect the cause of the defect (in the mechanical block or electrical circuits) and to determine the defective position of the mechanical block.
Detected parts	Trouble sensors • Take-up end sensor (EST) • Supply end sensor (ESS) • Take-up reel sensor (RST) • Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG)	Trouble sensors • Take-up end sensor (EST) • Supply end sensor (ESS) • Take-up reel sensor (RST) • Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG) Loading motor (LOD, UNL) Mechanism mode switch (EJT, UST, REW, LST, FWD, HEC) Tape detection switches, etc. • Erase prevention tab detection switch (TAB) • ME/MP detection switch (ME) • Hi-8 MP detection switch (MP) • Cassette holder switch (STG)
Cautions	When the rewind mode is entered, the defect data is erased.	Engage the B mode after completing the A mode. If the B mode is engaged first, the defect data may be erased.

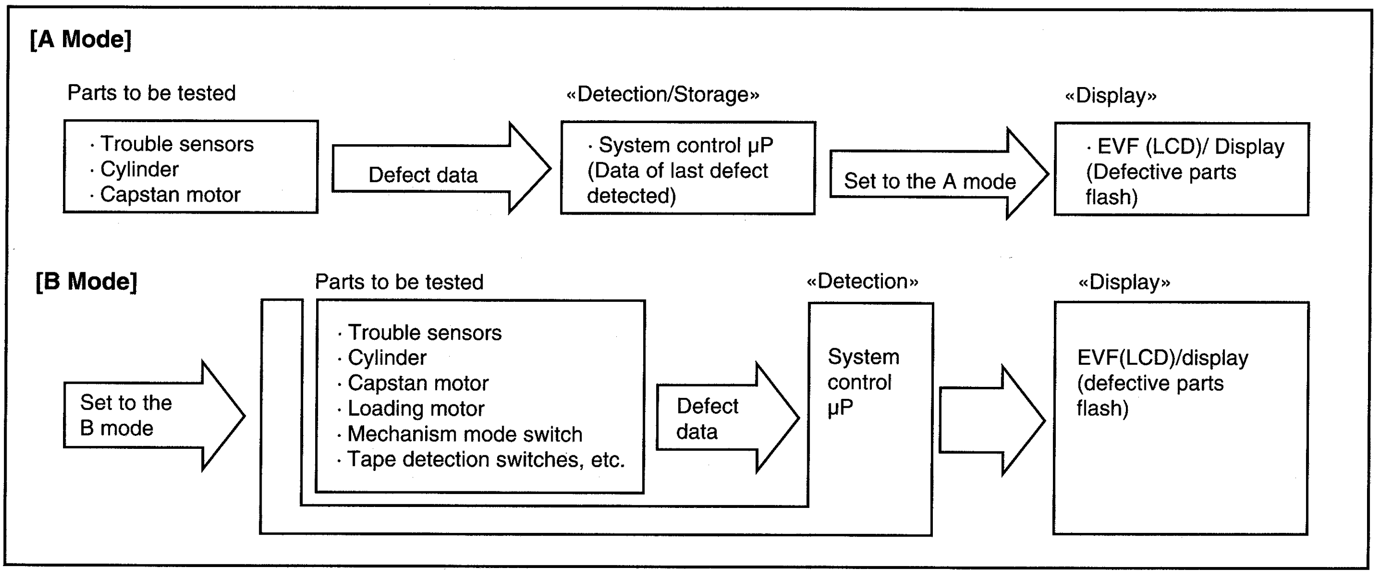

[A Mode]
Parts to be tested
· Trouble sensors
· Cylinder
· Capstan motor
Defect data
«Detection/Storage»
· System control μP (Data of last defect detected)
Set to the A mode
«Display»
· EVF (LCD)/ Display (Defective parts flash)
[B Mode]
Set to the B mode
Parts to be tested
· Trouble sensors
· Cylinder
· Capstan motor
· Loading motor
· Mechanism mode switch
· Tape detection switches, etc.
Defect data
«Detection»
System control μP
«Display»
EVF(LCD)/display (defective parts flash)

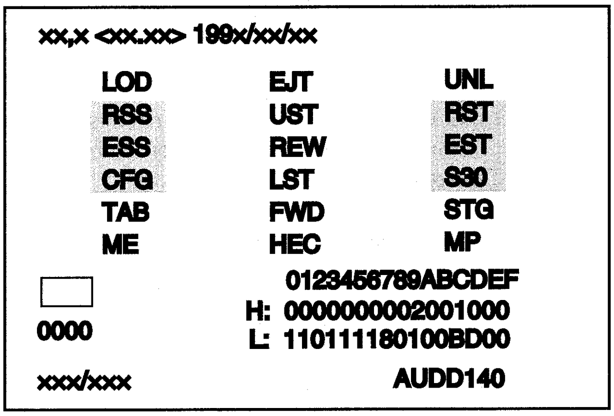
Fig. 1-2 Oeration Processes of Self-Diagnostic Functions

1.3 Setting Procedure and Details of Diagnosis

1.3.1 Occasional Defect Self-Diagnostic Function (A Mode)

(1) Setting Procedure

1) Connect (attach) a power supply (battery).
2) Set the CAM/OFF/VIDEO switch to"VIDEO".
3) Press the DATE button. [Within half a second]
4) Press the DATE and REW buttons simultaneously and hold them for 3-5 seconds.



```
xx,x <xx.xx> 199x/xx/xx
      LOD        EJT        UNL
      RSS        UST        RST
      ESS        REW        EST
      CFG        LST        S30
      TAB        FWD        STG
      ME         HEC        MP
                    0123456789ABCDEF
[  ]             H: 0000000002001000
0000             L: 110111180100BD00
xxx/xxx                     AUDD140
```

«Results of self-diagnosis»

- The shaded items flash if they are defective.
- See Table 1-2 for the results of diagnosis.

Cautions:

- Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
- Only the shaded items are tested in the A mode.
- Other items are ignored.

[To release]

- Set the CAM/OFF/VIDEO switch to "OFF".
- Press the DATE and REW buttons simultaneously.

(2) Results of Diagnosis

Table 1-2 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the A mode.

Table 1-2 Details of A Mode Self-Diagnosis

Part	Display	Results of diagnosis	Parts/circuits deemed to be defective
Trouble sensors	RSS	The pulse from the supply reel sensor is defective.	Supply reel disk Trouble sensor (reel sensor) IC0901
	RST	The pulse from the take-up reel sensor is defective.	Take-up reel disk Trouble sensor (reel sensor) IC0901
	ESS	The pulse from the supply end sensor is defective.	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective.	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
Cylinder	S30	The SW30/25 (CYL. FG) pulse is defective.	Cylinder IC0631 IC0901 DC-DC converter circuit
Capstan	CFG	The CAPST. FG pulse is defective.	Capstan motor IC0651 IC0901 DC-DC converter circuit

1.3.2 Mechanical Block Self-Diagnostic Function (B Mode)

Caution: Complete the A mode before engaging the B mode.

(1) Setting Procedure

1) Connect (attach) a power supply (battery).
2) Press the EJECT switch to set to the eject state.
3) Press the "Hi-8 MP" switch on the trouble sensor and the DATE button and hold them, then set the CAM/OFF/VIDEO switch to "VIDEO" (Hold this state for a few seconds.) [Within 3 seconds].
4) Close the cassette lid.

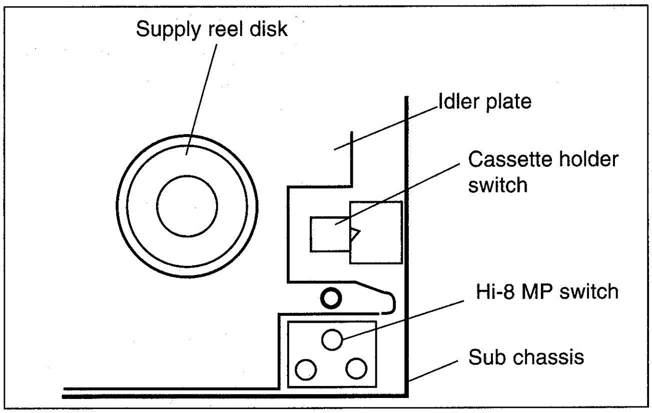
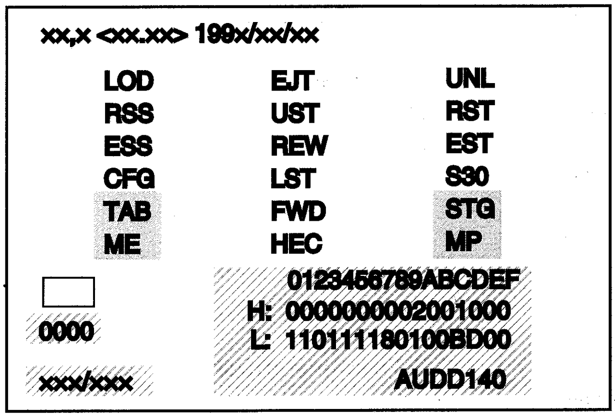


Fig.1-3 Hi-8 MP Switch Position



```
xx,x <xx.xx> 199x/xx/xx
        LOD          EJT          UNL
        RSS          UST          RST
        ESS          REW          EST
        CFG          LST          S30
        TAB          FWD          STG
        ME           HEC          MP
                         0123456789ABCDEF
                      H: 0000000002001000
 0000                 L: 110111180100BD00
 xxxx/xxxx                        AUDD140
```

«Results of self-diagnosis»

- The defective items flash.
- The shaded items are the tape detection switches and cassette holder switch which flash when they are not pressed.
- See Table 1-3 for the results of diagnosis.

Cautions:

- Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
- The indications in dotted lines are not covered by the self-diagnostic functions.
- It is normal for the diagnostic procedure to end in the eject state. Do not close the cassette lid thereafter.

[To release]

- Set the CAM/OFF/VIDEO switch to "OFF".

5) The procedure ends in the eject state.

Caution: Do not close the cassette lid.

(2) Results of diagnosis

Table 1-3 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the B mode.

Table 1-3 Results of B Mode Self-Diagnosis (1/2)

Part	Display	Results of diagnosis (Detect display conditions)	Parts/circuits deemed to be defective
Loading motor	LOD	The loading motor is defective when running forward. (Does not load within 10 seconds.)	Loading motor Rotation of drive gears in mechanical block faulty. IC0671 IC0901 IC0902 Power supply (5V, B+) lines.
	UNL	The loading motor is defective when runnig in reverse. (Does not unload within 10 seconds.)	
Trouble sensors	RSS	The pulse from the supply reel sensor is defective. (There is one pulse or less withinte two seconds.)	Supply reel disk Trouble sensor (reel sensor) Capstan motor IC0901

Table 1-3 Results of B Mode Self-Diagnosis (2/2)

Part	**Display**	**Results of diagnosis (Detect display conditions)**	**Parts/circuits deemed to be defective**
Trouble sensor	RST	The pulse from the take-up reel sensor is defective. (There is one pulse or less within two seconds.)	Take-up reel disk Trouble sensor (reel sensor) Capstan motor IC0901
	ESS	The pulse from the supply end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
Tape detection switches, etc.	TAB	The erase prevention tab detection switch detects the record inhibit state (OFF).	**Caution**: These switches flash when they are not pressed. It is abnormal if they flash when pressed. Trouble sensor IC0901
	ME	The ME/MP tape detection switch detects the MP state (OFF).	
	MP	The Hi-8 MP tape detection switch detects the normal MP state (OFF).	
	STG	The cassette holder switch detects the state where the cassette holder is not lowered (OFF).	
Capstan motor	CFG	The CAPST. FG pulse is defective. (150 pulses or less within two seconds.)	Capstan motor IC0651 IC0901 DC-DC converter circuit
Cylinder	S30	The SW30/25 (CYL. FG) pulse is defective. (No pulse is input normally within two seconds.)	Cylinder IC0631 IC0901 DC-DC converter circuit
Mechanism mode switch	UST	The unloading stop position detection signal is defective.	**Caution**: The positions shown on the left are detected in the order described within 10 seconds. Mechanism mode switch Trouble sensor IC0901 Defective rotation/phase of drive gears in mechanical block. Loading motor. Tape transport components. Guide roller rails DC-DC converter circuit.
	REW	The rewind position detection signal is defective.	
	LST	The loading stop position detection signal is defective.	
	FWD	The play or fast forward position detection signal is defective.	
	HEC	Between the fast forward position and unloading stop position detection signal isdefective.	
	EJT	The eject position detection signal is defective.	

2. DEMONSTRATION (DEMO) MODE

This camera/recorder is equipped with a demonstration mode in which the incorporated functions are automatically switched and displayed.

Caution:
The camera/recorder does not accept functions (operations) other than those shown below:

- EJECT
- Setting CAM/OFF/VIDEO switch to OFF

2.1 Setting the Demo Mode

Attach a power supply (battery) and choose one of the following procedures:

1) When "DEMO AUTO" is specified using menu, leave the camera/recorder for approx. 10 minutes with all the following conditions satisfied:
   - Date not set
   - Cassette tape not inserted
   - In the camera recording mode

2) When "DEMO AUTO" is specified using the menu, set the CAM/OFF/VIDEO switch from OFF to CAM while holding down the PLAY button, with all the following conditions satisfied:
   - Cassette tape not inserted
   - STANDBY/LOCK switch set to STANDBY

3) Specify "DEMO START" using the menu with a cassette not inserted, and then release the menu.
   Note: "DEMO START" cannot be specified when a cassette is in the camera/recorder.

2.2 Exiting the Demo Mode

Perform one of the following procedures to exit the demo mode:

1) CAM/OFF/VIDEO switch to OFF or remove the power supply.
2) Load a cassette.

2.3 Contents of Demonstration

The following table shows the examples of display/operation contents in the demo mode:
The display/operation in the demo mode will vary, depending on the model (equipped functions provided or not).

No.	Item	Display content, example of display	Display time	Remarks
1	Start of demo	All display off.	For approx. 4 s	
2	Display of model name		----------	
3	WELCOME display	WELCOME TO HITACHI DIGITAL DEMONSTRATION	----------	
4	Introduction of functions	HQ D.ZOOM/7-MODE EFFECTS/TBC/ CNR/7-COLOR TITLES/EDGE CLEAN/ 6-MODE FADER/2.5" LCD/EIS/ PROGRAM AE	----------	Varies, depending on the model.
5	EIS simulation	EIS OFF: Electronic zoom operation, vertical picture shaking is considerable. EIS ON: Electronic zoom operation, vertical picture shaking is negligible.	For approx. 3 s For approx. 3 s	Only for models with EIS function.
6	HQ DIGITAL ZOOM demonstration	Rapidly changing from wide to tele in digital zoom area. Rapidly changing from tele to wide in digital zoom area.	For approx. 3 s For approx. 3 s	Performed twice.
7	6-MODE FADE demonstration	White Fade: In - Stop - Out Wipe Fade: In - Stop - Out Mosaic Fade: In - Stop - Out Art Fade: In - Stop - Out Zoom Fade: In - Stop - Out Black & White Fade: In - Stop - out	----------	Each stop time is for approx. 1 s.

No.	Item	Display content, example of display	Display time	Remarks
8	7-MODE EFFECTS demonstration	16 × 9 picture Negative picture Half -mirror picture Mosaic picture Art picture Sepia color picture No color (black & white) picture	For approx. 3 s each	
9	TBC simulation	TBC OFF: Electronic zoom operation, horizontal picture shaking is negligible. TBC ON: Normal picture (horizontal shaking stops.	For approx. 3 s For approx. 3 s	Performed twice.
10	User registered title demonstration	TITLE DEMO	----------	
11	7-COLOR TITLES demonstration	Preset titles appear in sequence. The display is returned to the first title, and then its color is changed.	For approx. 1 s each For approx. 1 s each	Colors change from white to yellow, cyan, magenta, red, green, and back to white in sequence.
12	Returning to 1.			

Memo

1. Selbstdiagnosefunktionen

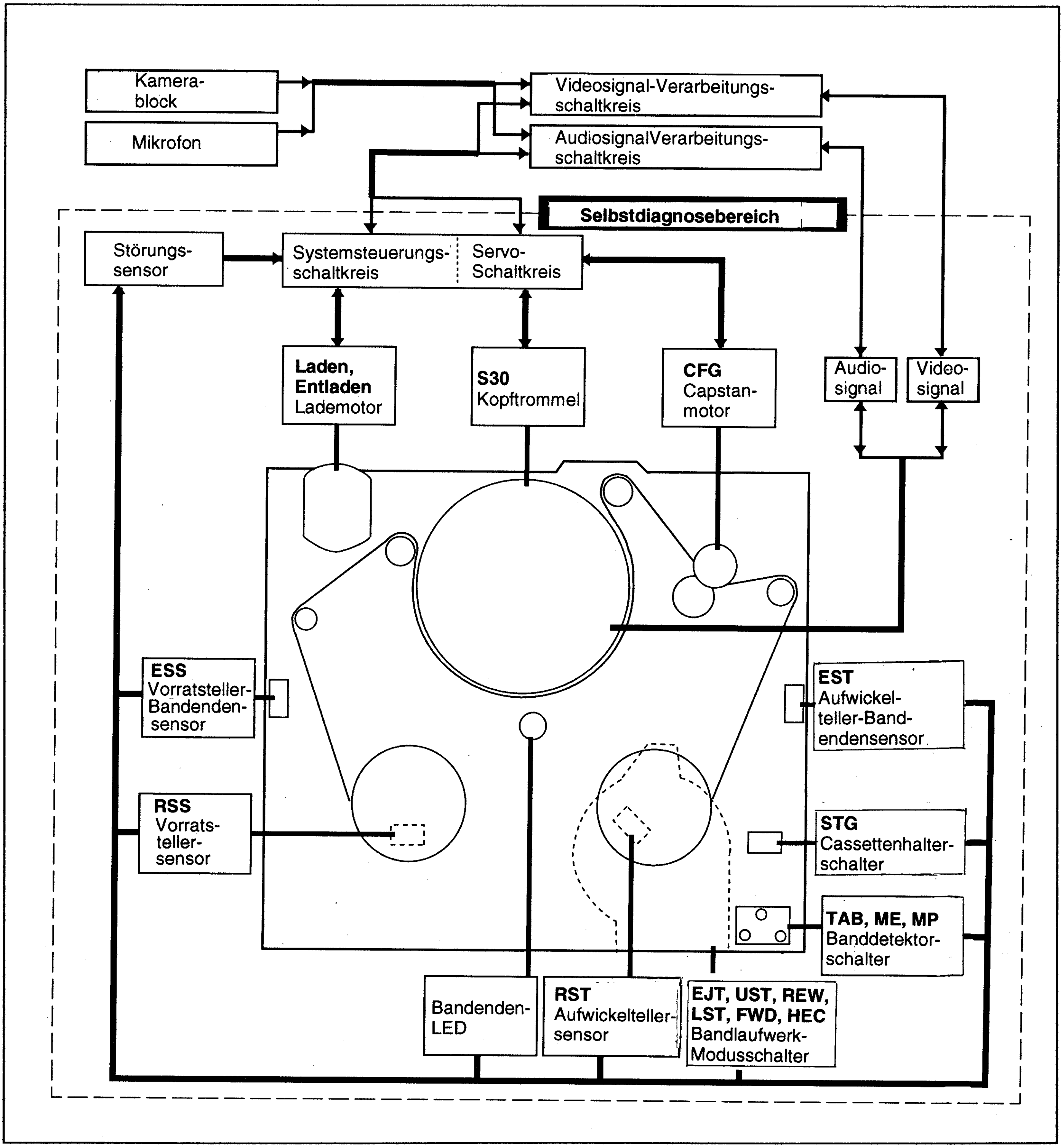
1. 1 Übersicht

Der Kamerarecorder weist die folgenden Selbstdiagnosefunktionen auf.

※ Selbstdiagnosefunktion für gelegentliche Defekte (A-Modus)

※ Selbstdiagnosefunktion für mechanischen Block (B-Modus)

Abb. 1-1 zeigt den Selbstdiagnosebereich. Die Selbstdiagnosefunktionen des Kamerarecorders werden vom Systemsteuerungs- (Haupt) µP (IC0901) durchgeführt, der die Daten hinsichtlich Defekte im Steuerungssystem des mechanischen Blocks feststellt, speichert und anzeigt.



Kamera-block
Mikrofon
Videosignal-Verarbeitungs-schaltkreis
AudiosignalVerarbeitungs-schaltkreis
Selbstdiagnosebereich
Störungs-sensor
Systemsteuerungs-schaltkreis
Servo-Schaltkreis
Laden, Entladen Lademotor
S30 Kopftrommel
CFG Capstan-motor
Audio-signal
Video-signal
ESS Vorratsteller-Bandenden-sensor
RSS Vorrats-teller-sensor
EST Aufwickel-teller-Band-endensensor
STG Cassettenhalter-schalter
TAB, ME, MP Banddetektor-schalter
Bandenden-LED
RST Aufwickelteller-sensor
EJT, UST, REW, LST, FWD, HEC Bandlaufwerk-Modusschalter

Abb. 1-1 Selbstdiagnosebereich

1.2 Einzelheiten von Display/Feststellung und Applikationen

Tabelle 1-1 faßt die Einzelheiten von Display/Feststellung der Selbstdiagnosefunktionen und ihrer Applikationen zusammen. Abb. 1-2 zeigt die Betriebsprozesse der Selbstdiagnosefunktionen.

Tabelle 1-1 Einzelheiten von Display/Feststellung der Selbstdiagnosefunktionen und ihrer Applikationen

	Selbstdiagnosefunktion für gelegentliche Defekte (A-Modus)	**Selbstdiagnosefunktion für mechanischen Block (B-Modus)**
Einzelheiten von Display/Feststellung	Der Systemsteuerungs-µP speichert und zeigt die Defektdaten an. (Falls mehrere Defekte aufgetreten sind, wird nur der zuletzt festgestellte Defekt abgespeichert.)	Zeigt die Daten für den Defekt an, der aufgetreten ist, wenn der B-Modus eingestellt war.
Applikation	Wird verwendet, wenn das Defektsymptom während der Wartung nicht wiederholt wird.	Wird verwendet, um die Ursache des Defekts (im mechanischen Block oder in den elektrischen Schaltkreisen) festzustellen und die defekte Position des mechanischen Blocks zu bestimmen.
Festgestellte Teile	Störungssensoren Aufwickelteller-Bandendensensor (EST) Vorratsteller-Bandendensensor (ESS) Aufwickeltellersensor (RST) Vorratstellersensor (RSS) Kopftrommel (S30) Capstanmotor (CFG)	Störungssensoren Aufwickelteller-Bandendensensor (EST) Vorratsteller-Bandendensensor (ESS) Aufwickeltellersensor (RST) Vorratstellersensor (RSS) Kopftrommel (S30) Capstanmotor (CFG) Lademotor (LOD, UNL) Bandlaufwerk-Modusschalter (EJT, UST, REW, LST, FWD, HEC) Banddetektorschalter usw. Detektorschalter für Löschschutzlamelle (TAB) ME/MP-Detektorschalter (ME) Hi-8 MP-Detektorschalter (MP) Cassettenhalterschalter (STG)
Vorsicht	※ Wenn der Schnellvorlauf- oder Rücklaufmodus aktiviert wird, werden die Defektdaten gelöscht.	Den B-Modus aufrufen, nachdem der A-Modus beendet ist. Falls der B-Modus zuerst aufgerufen wird, können die Defektdaten gelöscht werden.

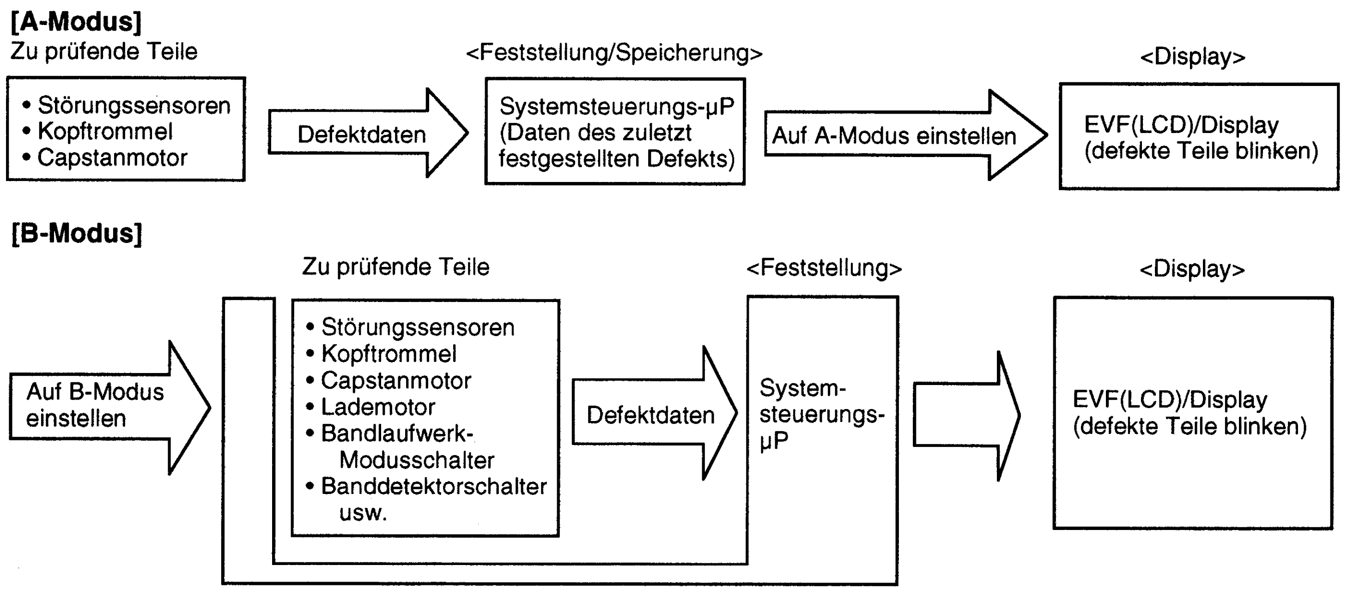

[A-Modus]
Zu prüfende Teile
• Störungssensoren
• Kopftrommel
• Capstanmotor
Defektdaten
<Feststellung/Speicherung>
Systemsteuerungs-µP
(Daten des zuletzt
festgestellten Defekts)
Auf A-Modus einstellen
<Display>
EVF(LCD)/Display
(defekte Teile blinken)
[B-Modus]
Auf B-Modus
einstellen
Zu prüfende Teile
• Störungssensoren
• Kopftrommel
• Capstanmotor
• Lademotor
• Bandlaufwerk-
Modusschalter
• Banddetektorschalter
usw.
Defektdaten
<Feststellung>
System-
steuerungs-
µP
<Display>
EVF(LCD)/Display
(defekte Teile blinken)

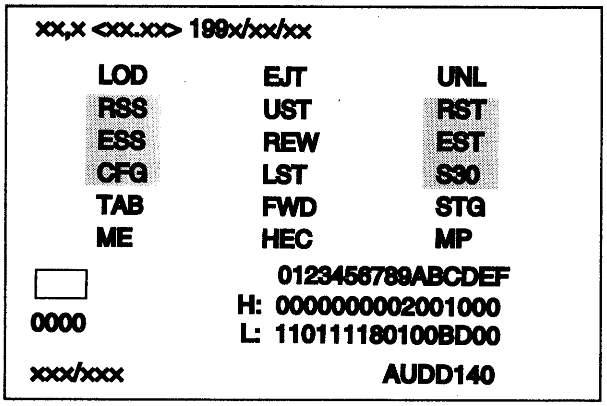
Abb. 1-2 Operationsprozesse der Selbstdiagnosefunktionen

1.3 Einstellvorgang und Einzelheiten der Diagnosen

1.3.1 Selbstdiagnosefunktion für gelegentliche Defekte (A-Modus)

(1) Einstellvorgang

1) Eine Stromversorgung (Batterie) anschließen anbringen).
2) Den CAM/OFF/VIDEO-Schalter auf "VIDEO" stellen.
3) Die DATE-Taste drücken. [Innerhalb einer halben Sekunde]
4) Die DATE- und REW-Taste gleichzeitig betätigen und für 3 - 5 Sekunden gedrückt halten.



```
xx,x <xx.xx> 199x/xx/xx
      LOD          EJT          UNL
      RSS          UST          RST
      ESS          REW          EST
      CFG          LST          S30
      TAB          FWD          STG
      ME           HEC          MP
 ☐                    0123456789ABCDEF
 0000              H: 0000000002001000
                   L: 110111180100BD00
 xxx/xxx                      AUDD140
```

<Ergebnisse der Selbstdiagnose>
* Die schattierten Posten blinken, wenn sie defekt sind.
* Für die Ergebnisse der Diagnose siehe Tabelle 1-2.

Vorsicht:
* Während der Selbstdiagnose nur die spezifizierten Tasten drücken; anderenfalls kann es zu einer Störung kommen.
* Nur die schattierten Posten werden im A-Modus geprüft. Die anderen Posten werden ignoriert.

[Zur Freigabe]
* Den CAM/OFF/VIDEO-Schalter auf "OFF" stellen.
* Die DATE- und REW-Tasten gleichzeitig drücken.

(2) Ergebnisse der Diagnose

Tabelle 1-2 fast die Ergebnisse der Diagnose und die im A-Modus als defekt befundenen Schaltkreise/Teile zusammen.

Tabelle 1-2 Ergebnisse der Selbstdiagnose im A-Modus

Teil	Display	Ergebnisse der Diagnose	Als defekt befundene Teile/Schaltkreise
Störungs-sensoren	RSS	Der Impuls vom Vorratstellersensor ist defekt.	* Vorratsteller * Störungssensor (Wickeltellersensor) * IC0901
	RST	Der Impuls vom Aufwickeltellersensor ist defekt.	* Aufwickelteller * Störungssensor (Wickeltellersensor) * IC0901
	ESS	Der Impuls vom Vorratsteller-Bandendensensor ist defekt.	* Störungssensoren (Bandendensensor/Bandenden-LED) * Q0905 * IC0901 * Gs/Gs-Konverterschaltkreis (B+ Leitung)
	EST	Der Impuls vom Aufwickelteller-Bandcendensensor ist defekt.	* Störungssensoren (Bandendensensor/Bandenden-LED) * Q0905 * IC0901 * Gs/Gs-Konverterschaltkreis (B+ Leitung)
Kopftrommel	S30	Der SW25 (CYL. FG) Impuls ist defekt.	* Kopftrommel * IC0631 * IC0901 * Gs/Gs-Konverterschaltkreis
Capstanmotor	CFG	Der CAPST. FG-Impuls ist defekt.	* Capstanmotor * IC0651 * IC0901 * Gs/Gs-Konverterschaltkreis

1.3.2 Selbstdiagnosefunktion für mechanischen Block (B-Modus)

Vorsicht: Den A-Modus beenden, bevor der B-Modus aufgerufen wird.

(1) Einstellvorgang

1) Eine Stromversorgung (Batterie) anschließen (anbringen).
2) Die EJECT-Taste drücken, um den Auswurfstatus einzustellen.
3) Den "Hi8 MP"-Schalter am Störungssensor und die DATE-Taste betätigen und gedrückt halten; danach den CAM/OFF/VIDEO-Schalter auf "VIDEO" stellen.
(Diesen Status für einige Sekunden beibehalten.)
[Innerhalb von 3 Sekunden]
4) Den Cassettenschachtdeckel schließen.

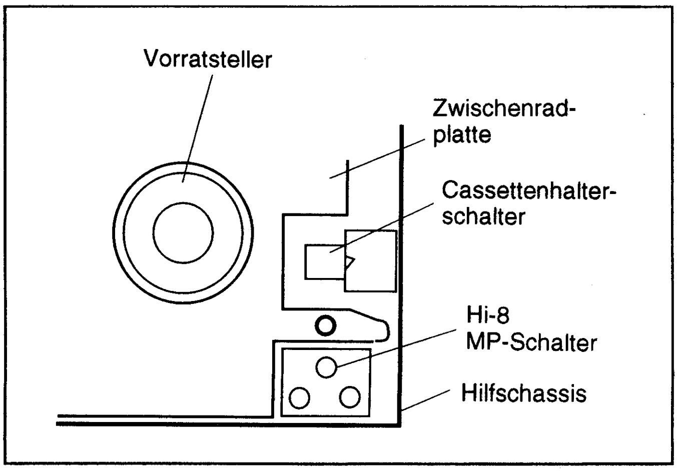
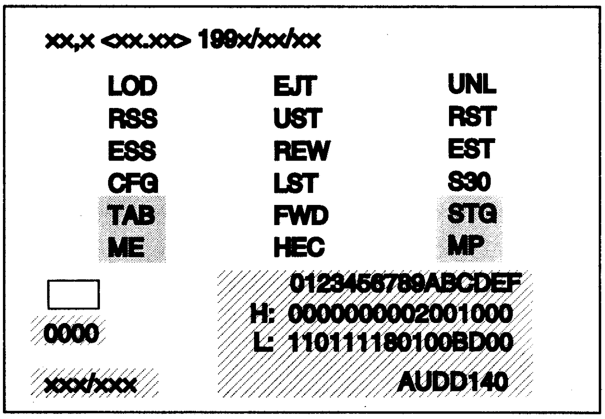


Abb. 1-3 Position des Hi-8 MP-Schalters



```
xx,x <xx.xx> 199x/xx/xx
     LOD        EJT        UNL
     RSS        UST        RST
     ESS        REW        EST
     CFG        LST        S30
     TAB        FWD        STG
     ME         HEC        MP
                    0123456789ABCDEF
0000             H: 0000000002001000
                 L: 110111180100BD00
xxx/xxx                      AUDD140
```

<Ergebnisse der Selbstdiagnose>
- * Die defekten Posten blinken.
- * Die schattierten Posten sind die Banddetektorschalter und der Cassettenhalterschalter, die blinken, wenn sie nicht gedrückt werden.
- * Für die Ergebnisse der Diagnose siehe Tabelle 1-3.

Vorsicht:
- * Während der Selbstdiagnose nur die spezifizierten Tasten drücken; anderenfalls kann es zu einer Störung kommen.
- * Die mit gestrichten Linien umrandeten Anzeigen werden von den Selbstdiagnosefunktionen nicht erfaßt.
- * Es ist normal, daß der Diagnosevorgang in dem Auswurfstatus endet. Danach den Cassettenschachtdeckel nicht schließen.

[Zur Freigabe]
- * Den CAM/OFF/VIDEO-Schalter auf "OFF" stellen.

5) Der Vorgang endet im Auswurfmodus.

Vorsicht: Den Cassettenschachtdeckel nicht schließen.

(2) Ergebnisse der Diagnose

Tabelle 1-3 faßt die Ergebnisse der Diagnose und die im B-Modus als defekt befundenen Schaltkreise/Teile zusammen.

Tabelle 1-3 Ergebnisse der Selbstdiagnose im B-Modus (1/2)

Teil	Display	Ergebnisse der Diagnose (Defektanzeigebedingungen)	Als defekt befundene Teile/Schaltkreise
Lademotor	LOD	Der Lademotor ist defekt, wenn er in Vorwärtsrichtung läuft. (Laden erfolgt nicht innerhalb von 10 Sekunden.)	* Lademotor * Rotation der Antriebsräder im mechanischen Block fehlerhaft * IC0671 * IC0901 * IC0902 * Stromversorgungs- (5V, B+) Leitungen
	UNL	Der Lademotor ist defekt, wenn er in Rückwärtsrichtung läuft. (Das Entladen erfolgt nicht innerhalb von 10 Sekunden.)	
Störungssensoren	RSS	Der Impuls vom Vorratstellersensor ist defekt. (Während zwei Sekunden wird nur ein Impuls oder weniger ausgegeben.)	* Vorratsteller * Störungssensor (Wickeltellersensor) * Capstanmotor * IC0901
	RST	Der Impuls vom Aufwickeltellersensor ist defekt. (Während zwei Sekunden wird nur ein Impuls oder weniger ausgegeben.)	* Aufwickelterller * Störungssensor (Wickeltellersensor) * Capstanmotor * IC0901

Tabelle 1-3 Ergebnisse der Selbstdiagnose im B-Modus (2/2)

Teil	Display	Ergebnisse der Diagnose (Defektanzeigebedingungen)	Als defekt befundene Teile/Schaltkreise
Störungssensoren	ESS	Der Impuls vom Vorratsteller-Bandendensensor ist defekt. (Kein Impuls wird kontinuierlich für mehr als 100 ms innerhalb von zwei Sekunden eingegeben.)	* Störungssensoren (Bandendensensor/ Bandenden-LED) * Q0905 * IC0901 * Gs/Gs-Konverterschaltkreis (B+ Leitung)
	EST	Der Impuls vom Aufwickelteller-Bandendensensor ist defekt. (Kein Impuls wird kontinuierlich für mehr als 100 ms innerhalb von zwei Sekunden eingegeben.)	* Störungssensoren (Bandendensensor/ Bandenden-LED) * Q0905 * IC0901 * Gs/Gs-Konverterschaltkreis (B+ Leitung)
Banddetektorschalter usw.	TAB	Der Löschschutzlamellen-Detektorschalter stellt die Aufnahmesperre (OFF) fest.	Vorsicht: Diese Schalter blinken, wenn sie nicht gedrückt werden. Es ist abnormal, wenn sie blinken, wenn sie gedrückt werden. * Störungssensor * IC0901
	ME	Der ME/MP-Banddetektorschalter stellt den MP-Status (OFF) fest.	
	MP	Der Hi8 MP-Banddetektorschalter stellt den normalen MP-Status (OFF) fest.	
	STG	Der Cassettenhalterschalter stellt den Status fest, in dem der Cassettenhalter nicht abgesenkt ist (OFF).	
Capstanmotor	CFG	Der CAPST. FG-Impuls ist defekt. (150 Impulse oder weniger innerhalb von zwei Sekunden).	* Capstanmotor * IC0651 * IC0901 * Gs/Gs-Konverterschaltkreis
Kopftrommel	S30	Der SW30/25 (CYL. FG) Impuls ist defekt. (Kein Impuls wird normalerweise innerhalb von zwei Sekunden eingegeben.)	* Kopftrommel * IC0631 * IC0901 * Gs/Gs-Konverterschaltkreis
Bandlaufwerk-Modusschalter	UST	Das Entladestopposition-Detektorsignal ist defekt.	Vorsicht: Die links dargestellten Positionen werden in der beschriebenen Reihenfolge innerhalb von 10 Sekunden festgestellt. * Bandlaufwerk-Modusschalter * Störungssensor * IC0901 * Defekte Rotation/Phase der Antriebsräder im mechanischen Block * Lademotor * Bandtransportkomponenten * Führungsrollenschienen * Gs/Gs-Konverterschaltkreis
	REW	Das Rücklaufpositions-Detektorsignal ist defekt.	
	LST	Das Ladestoppositions-Detektorsignal ist defekt.	
	FWD	Das Detektorsignal der Position für Wiedergabe oder Suchlauf vorwärts ist defekt.	
	HEC	Das Signal, das die Position zwischen Schnellvorlauf und Entladestopp feststellt, ist defekt.	
	EJT	Das Auswurfspositions-Detektorsignal ist defekt.	

2. Demonstrationsmodus

Dieser Video-Kamerarecorder verfügt über einen Demonstrationsmodus, der alle Funktionen automatisch umschaltet und anzeigt.

Vorsicht:
Der Video-Kamerarecorder nimmt in dem Demonstrationsmodus nur die folgenden Funktionen (Operationen) an:
- EJECT
- Schalten des CAM/OFF/VIDEO-Schalters auf OFF

2.1 Einstellung des Demonstrationsmodus

Eine Stromquelle (Akku) anbringen und einer der folgenden Vorgänge wählen:

1) Wenn "DEMO AUTO" unter Verwendung des Menüs spezifiziert wird, den Video-Kamerarecorder für ca. 10 Minuten mit den folgenden Bedingungen belassen:
   - Datum nicht eingestellt
   - Cassette nicht eingesetzt
   - Kameraaufnahmemodus eingeschaltet

2) Wenn "DEMO AUTO" unter Verwendung des Menüs spezifiziert wird, den CAM/OFF/VIDEO-Schalter von Position OFF auf Position CAM schalten, während die PLAY-Taste gedrückt gehalten wird, wobei die folgenden Bedingungen eingehalten werden müssen:
   - Cassette nicht eingesetzt
   - STANDBY/LOCK-Schalter auf STANDBY geschaltet

3) "DEMO AUTO" unter Verwendung des Menüs spezifizieren, ohne eine Cassette einzusetzen, und danach das Menü freigeben.
   Hinweis: "DEMO START" kann nicht spezifiziert werden, wenn eine Cassette in den Video-Kamerarecorder eingesetzt ist.

2.2 Verlassen des Demonstrationsmodus

Die folgenden Vorgänge ausführen, um den Demonstrationsmodus zu verlassen:

1) Den CAM/OFF/VIDEO-Schalter auf Position OFF schalten oder die Stromversorgung abtrennen.
2) Eine Cassette einsetzen.

2.3 Inhalt der Demonstration

Die nachfolgende Tabelle zeigt Beispiele der Anzeige/Operationen in dem Demonstrationsmodus: Die Anzeige/Operation in dem Demonstrationsmodus variiert, abhängig von dem Modell (ob bestimmte Funktionen vorhanden sind oder nicht).

Nr.	Benennung	Inhalt der Anzeige, Beispiel der Anzeige	Anzeigedauer	Bemerkungen
1	Start der Demonstration	Keine Anzeige.	Für ca. 4 s	
2	Anzeige des Modellnamens		—	
3	Anzeige der Begrüßung	WELCOME TO HITACHI DIGITAL DEMONSTRATION	—	
4	Einführung in die Funktionen	Hochwertiges Digitalzoom / 7 Effektmodi / TBC / CNR / 7 Farbtitel / Kantenbereinigung / 6 Ein / Ausblenungsdmodi / 2,5-Zoll LCD / EIS / Programm-AE	—	Variiert in Abhängigkeit von dem Modell.
5	EIS-Simulierung	EIS OFF: Betrieb des elektronischen Zooms, beachtliches vertikales Wackeln des Bildes. EIS ON: Betrieb des elektronischen Zooms, vernachlässigbares vertikales Wackeln des Bildes.	Für ca. 3 s Für ca. 3 s	Nur für Modelle mit EIS-Funktion.
6	Demonstration des hochwertigen Digitalzooms	Schneller Wechsel von Weitwinkel auf Tele in dem digitalen Zoombereich. Schneller Wechsel von Tele auf Weitwinkel in dem digitalen Zoombereich.	Für ca. 3 s Für ca. 3 s	Wird zweimal ausgeführt.
7	Demonstration der 6 Ein/ Ausblendungsmodi	Weißes Einblenden - Stopp - Ausblenden Wipe-Einblenden - Stopp - Ausblenden Mosaik-Einblenden - Stopp - Ausblenden Kunst-Einblenden - Stopp - Ausblenden Zoom-Einblenden - Stopp - Ausblenden Schwarzweiß-Einblenden - Stopp - Ausblenden	—	Die Stoppdauer beträgt jeweils ca. 1 s.

Nr.	Benennung	Inhalt der Anzeige, Beispiel der Anzeige	Anzeigedauer	Bemerkungen
8	Demonstration der 7 Effektmodi	16 x 9 Bild Negatives Bild Halb gespiegeltes Bild Mosaikbild Kunstbild Bild in Sepia Farbloses Bild (in Schwarzweiß)	Jeweils für ca. 3 s.	
9	TBC-Simulierung	TBC OFF: Betrieb des elektronischen Zooms, vernachlässigbares horizontales Wackeln des Bildes. TBC ON: Normales Bilds (horizontales Wackeln stoppt)	Für ca. 3 s Für ca. 3 s	Wird zweimal ausgeführt.
10	Demonstration des vom Anwender registrierten Titels	Titeldemonstration	—	
11	Demonstration der 7 Farbtitel	Voreingestellte Titel erscheinen aufeinander folgend. Die Anzeige kehrt an den ersten Titel zurück, worauf dessen Farbe geändert wird.	Jeweils für ca. 1 s Jeweils für ca. 1 s	Die Farben ändern in Sequenz von Weiß auf Gelb, Zyan, Magenta, Rot, Grün und zurück auf Weiß.
12	Rückkehr an Punkt 1.			

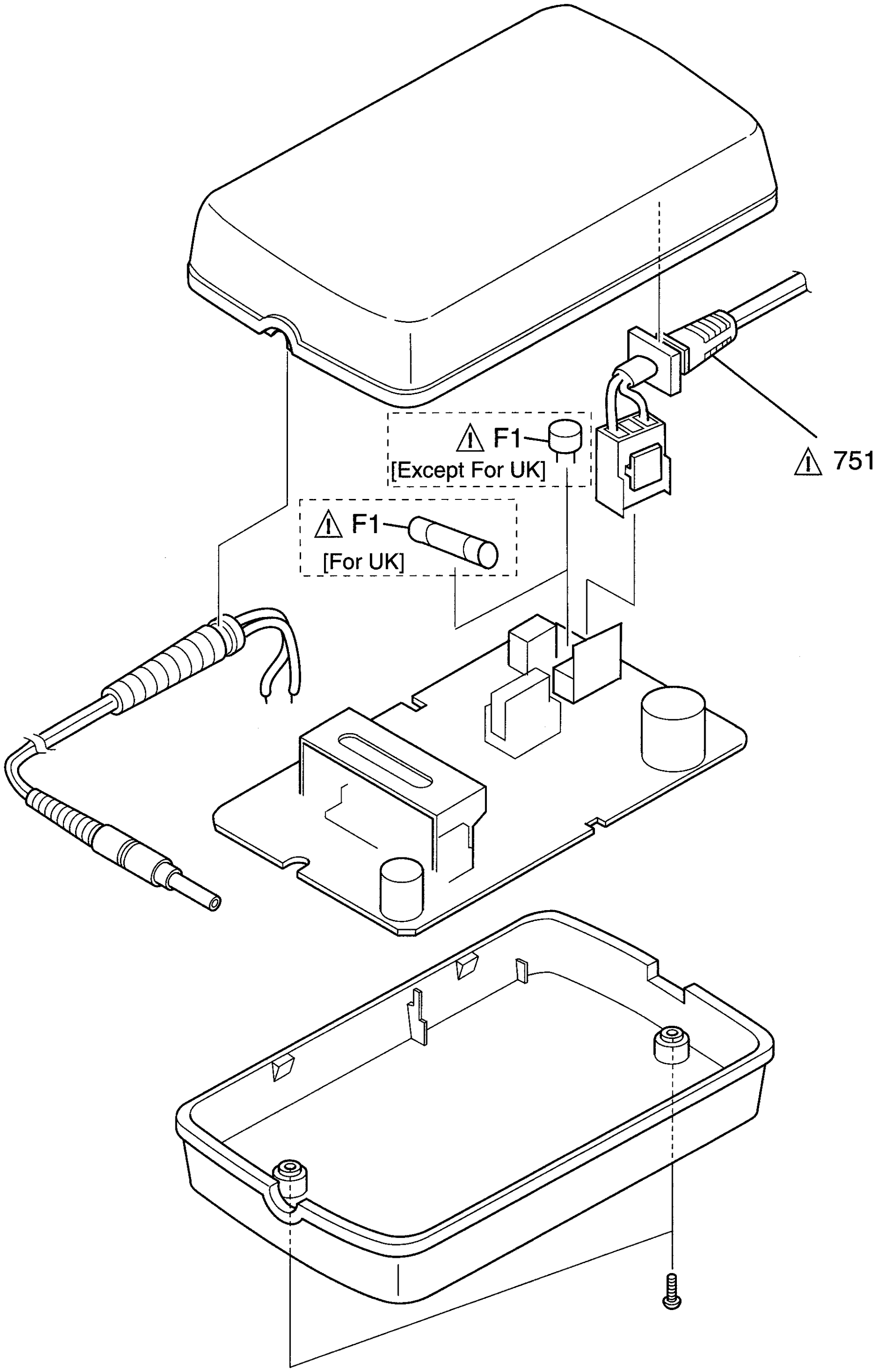
Notiz

Notiz

CHAPTER 8 VM-ACE5E(AC ADAPTER)

EXPLODED VIEW & REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
⚠ 751	EV10681	CORD, AC [Except for UK, AU]
⚠ 751	EV10701	CORD, AC [For UK]
⚠ 751	EV10711	CORD, AC [For AU]
⚠ F1	FN10261R	FUSE [Except for UK]
⚠ F1	5722801	FUSE [For UK]



⚠ F1
[Except For UK]
⚠ F1
[For UK]
⚠ 751
E
D
C
B
A
1
2
3
4

HITACHI

VM-H768LE/H765LE/H665LE
VM-H660E/E568LE/E565LE
VM-E563LE/E368E/E360E
VM-ACE5E

TK No.7001E,G Digital Media Products Division,Tokai

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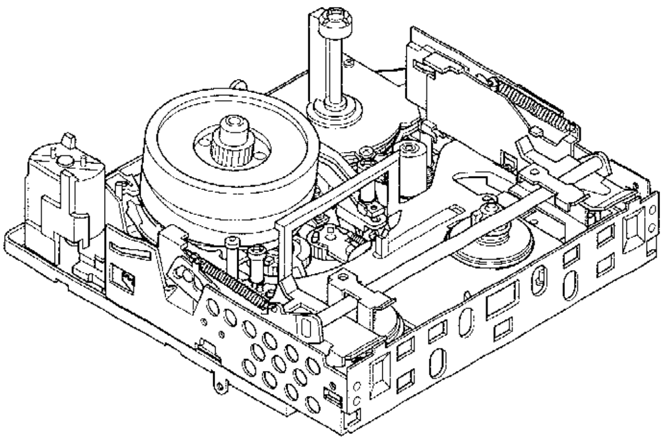
Printed in japan (II)

HITACHI

SERVICE MANUAL

TK | No.6811E

UH MECHANISM



Disassembly & Adjustment

Hi8

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

June 1998 Image & Information Media Systems Division, Tokai

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CHAPTER 4 EXPLODED VIEW

MECHANISM 20

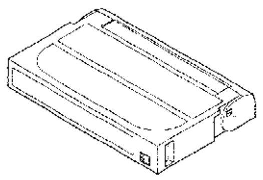
List of Component Identifications

Since the component names in this manual comply with those in the replacement parts list, many abbreviations and short names are used. The following table lists abbreviations for formal (general) names.

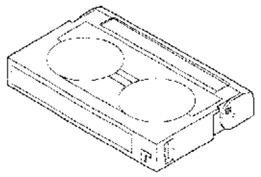
Abbreviations	Formal (general) names	Abbreviations	Formal (general) names
B-Base	Tension Band Base	Guide Roller (I)	Supply Guide Roller
Brake	Supply Sub Brake	Guide Roller (O)	Take-up Guide Roller
Brake Gear	Take-up Brake Gear	Link (L)	Supply Link Gear
Brush	Cylinder Brush	Link (R)	Take-up Link Gear
CM Base	Capstan Motor Base	LM Gear	Loading Motor Gear
Drive Arm	Loading Drive Arm	Mode Switch	Mechanism State Switch
Drive Lever	Pressure Roller Drive Lever	OHD Arm	Pull Out Arm
ED Arm	Eject Drive Arm	Pressure Arm	Pressure Roller Arm
Guide Rail (I)	Supply Guide Roller Rail	Operation Plate	Tension Operation Plate
Guide Rail (O)	Take-up Guide Roller Rail		

Jigs And Tapes For Adjutstment

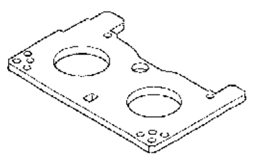
1. ALIGNMENT TAPE
Color Bar/400Hz
For NTSC
20HSC-2: No. 7099231
For PAL
20HSC-3: No. 7099232



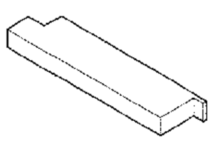
2. CASSETTE TORQUE METER
For NTSC
SRK-8T-132: No. 7099235
SRK-8T-112: No. 7099385
For PAL
SRK-8T-232: No. 7099236
SRK-8T-212: No. 7099402



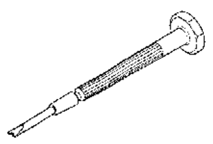
3. MASTER PLANE
No. 7099237



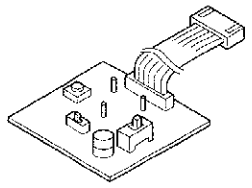
4. REEL DISK HEIGHT JIG
No. 7099238



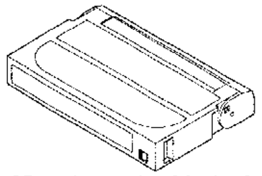
5. SPECIAL DRIVER
No. 7099239



6. ATF-R JIG (*1, *2)
No. 7069461



7. BLANK TAPE
For NTSC: P6-120
For PAL: P5-90



[Goods on the Market]

*1. Always set SW3 on the ATF-R jig to ON.
*2. The ATF jig (No.7099386) can also be used in place of ATF-R jig to adjust this model.

CHAPTER 1 DISASSEMBLY

1. BEFORE STARTING DISASSEMBLY

(1) The UH mechanism must basically be dismantled in the unloading stop state.
To manually set the mechanism to the unloading stop state, refer to "3. Method for Manual Unloading".

(2) Dismantle each component according to "1.1 Disassembly procedure".

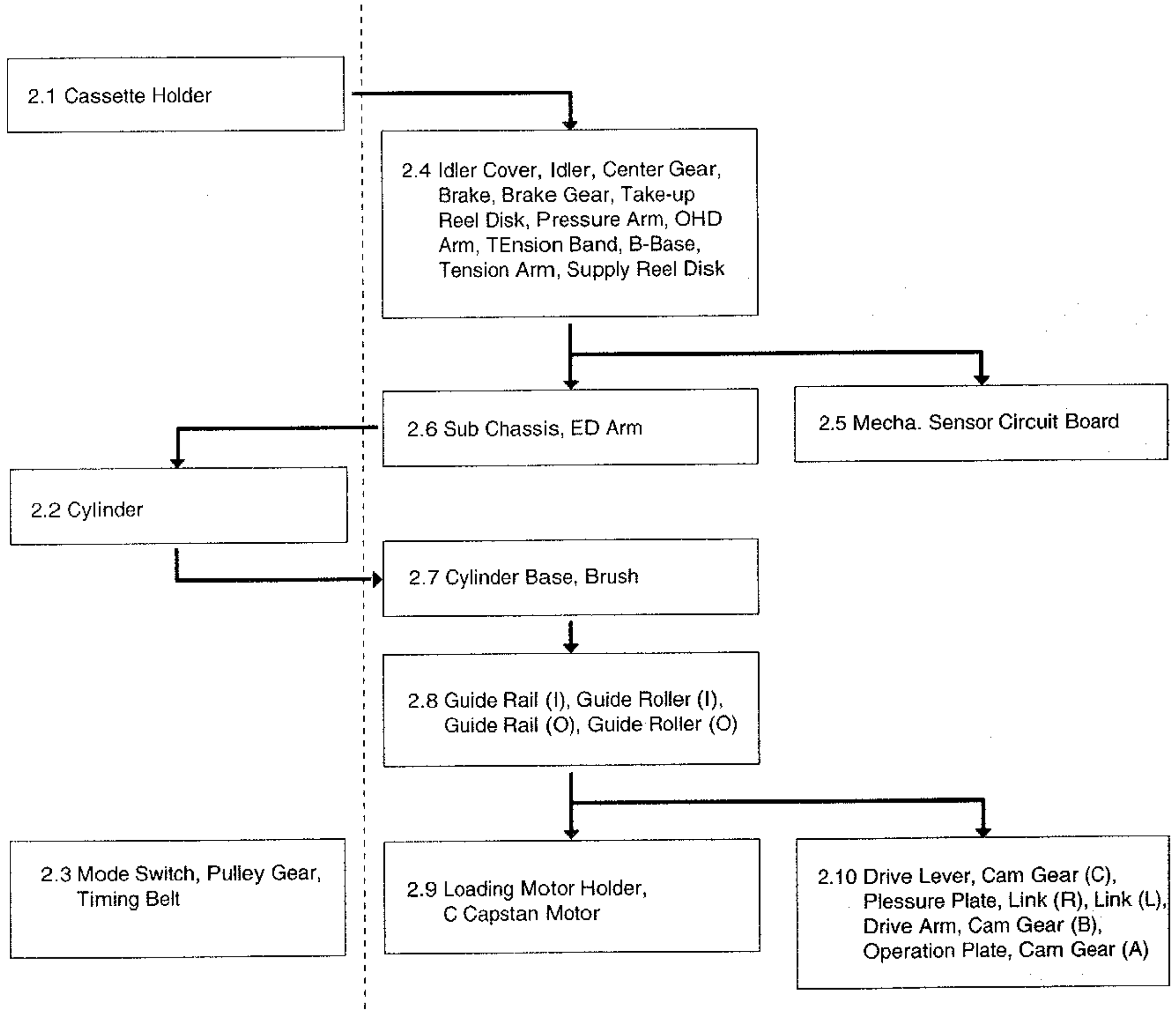
(3) For reassembly, perform the reverse procedure to disassembly when not otherwise specified.

(4) Do not reuse removed washers.

(5) Since the component names in this manual comply with those in the replacement parts list, many abbreviations and short names are used. For formal (general) names, refer to the table on the first page of this manual.

1.1 Disassembly Procedure

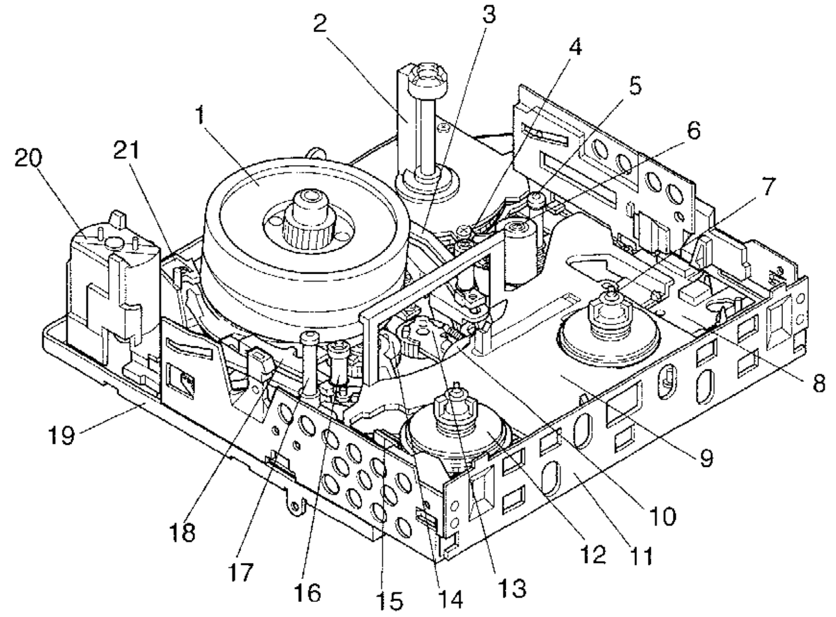
Note: Components on the left in broken lines can be removed independently.


2.1 Cassette Holder
2.4 Idler Cover, Idler, Center Gear, Brake, Brake Gear, Take-up Reel Disk, Pressure Arm, OHD Arm, TEnsion Band, B-Base, Tension Arm, Supply Reel Disk
2.6 Sub Chassis, ED Arm
2.5 Mecha. Sensor Circuit Board
2.2 Cylinder
2.7 Cylinder Base, Brush
2.8 Guide Rail (I), Guide Roller (I), Guide Rail (O), Guide Roller (O)
2.3 Mode Switch, Pulley Gear, Timing Belt
2.9 Loading Motor Holder, C Capstan Motor
2.10 Drive Lever, Cam Gear (C), Plessure Plate, Link (R), Link (L), Drive Arm, Cam Gear (B), Operation Plate, Cam Gear (A)

1.2 Main Mechanical Conponents Identification

1.2.1 TopView

1. Cylinder
2. Capstan Motor
3. Guide Rail (O) [Take-up Guide Roller Rail]
4. Guide Roller (O) [Take-up Guide Roller]
5. OHD Arm [Pull Out Arm]
6. Pressure Arm [Pressure Roller Arm]
7. Take-up Reel Disk
8. Mecha. Sensor Circuit Board
9. Idler Cover
10. Idler
11. Sub Chassis
12. Supply Reel Disk
13. Link (R) [Take-up Link Gear]
14. Link (L) [Supply Link Gear]
15. Tension Band
16. Guide Roller (I) [Supply Guide Roller]
17. Tension Arm
18. Guide Rail (I) [Supply Guide Roller Rail]
19. Main Chassis
20. Loading Motor Holder
21. Cylinder Base


2
3
4
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14
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Fig. 1-1

1.2.2 Bottom View

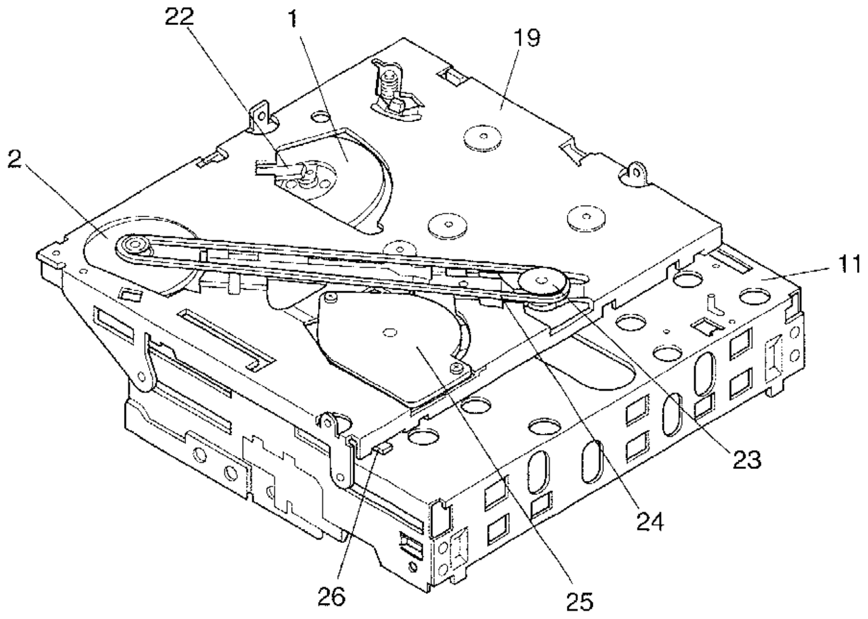

22
1
19
2
11
23
24
26
25

Fig. 1-2

1. Cylinder
2. Capstan Motor
11. Sub Chassis
19. Main Chassis
22. Brush [Cylinder Brush]
23. Pulley Gear
24. Timing Belt
25. Mode Switch [Mechanism State Switch]
26. ED Arm [Eject Drive Arm]

2. MECHANICAL COMPONENTS REMOVAL

2.1 Cassette Holder

Note: If the cassette holder does not raise, to move the EJECT LOCK of the holder to raise it. (See Fig. 2-1)

(1) Remove the E-rings holding the cassette holder on the left and right. (See Fig. 2-1)
(2) Use the linked sections of the holder front arms (L&R) with the sub chassis as pivots, to lift the rear arms (L&R) in the direction of the arrow.
(3) Release the front arms (L&R) from the sub chassis, and remove the cassette holder.

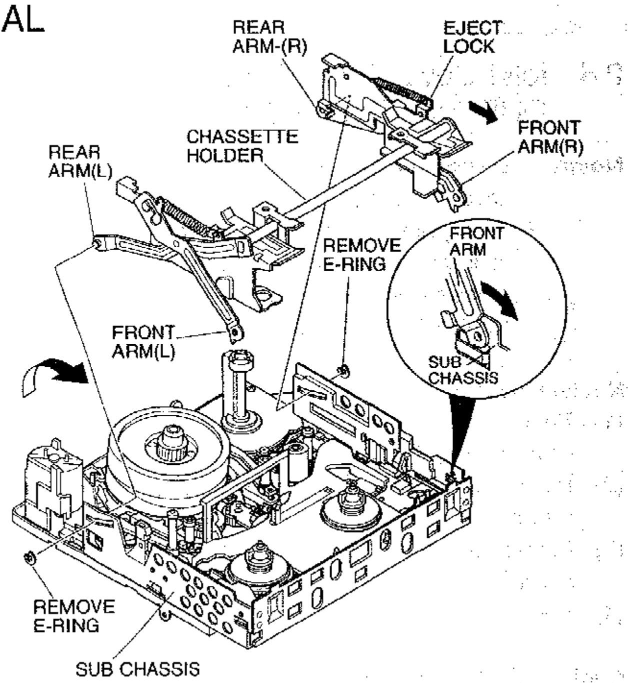

REAR ARM-(R)
EJECT LOCK
CHASSETTE HOLDER
FRONT ARM(R)
REAR ARM(L)
REMOVE E-RING
FRONT ARM
FRONT ARM(L)
SUB CHASSIS
REMOVE E-RING
SUB CHASSIS

Fig.2-1

2.2 Cylinder

Note: Be sure not to touch video head tips with your fingers or tools, etc. during work.

(1) Remove 3 screws. (See Fig. 2-2)

Reinstallation procedure and caution:

1. After reinstalling the cylinder, be sure to perform the following mechanical adjustment.
   GUIDE ROLLERS HEIGHT ADJUSTMENT
   (ADJUSTMENT AFTER REPLACING THE CYLINDER)

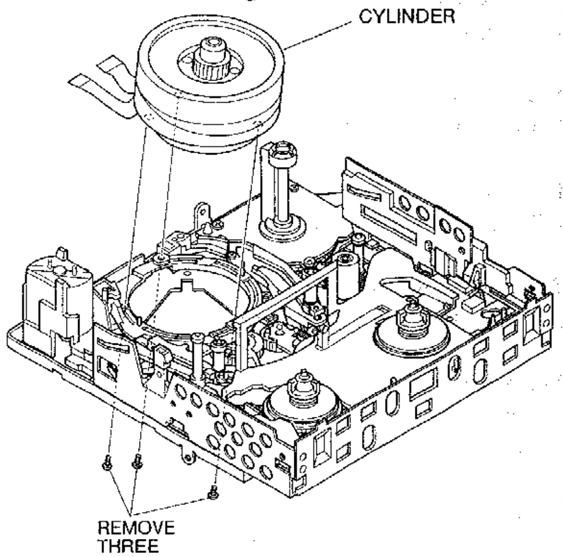

CYLINDER
REMOVE THREE SCREWS

Fig.2-2

2.3 Mode Switch, Pulley Gear, Timing Belt

Note: Remove these components before removing the idler gear on the next item.

■ **Mode Switch**

(1) Remove 1 screw. (See Fig. 2-3)

Reinstallation procedure and caution:

1. Make sure of gear phase. (See Figs. 2-3(B), 2-14 and 2-15)

■ **Pulley Gear, Timing Belt**

(1) Remove 1 washer. (See Fig. 2-3 (A))
(2) Pull up the pulley gear and remove the timing belt.

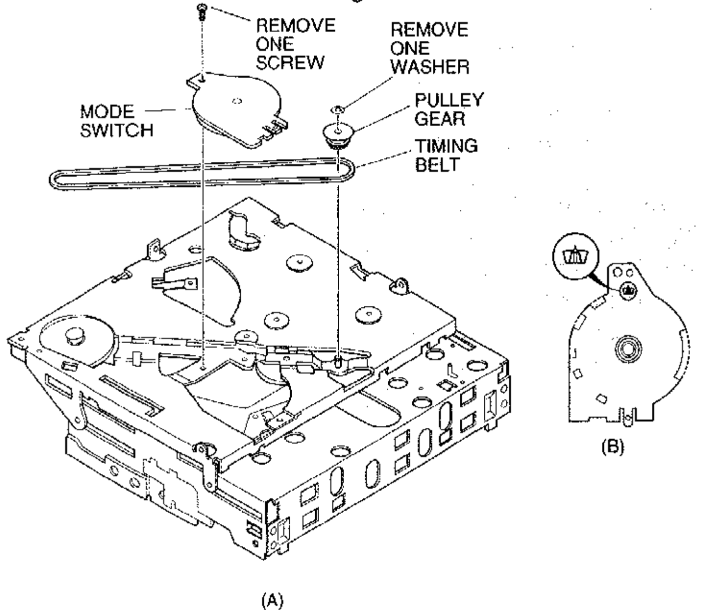

REMOVE ONE SCREW
REMOVE ONE WASHER
MODE SWITCH
PULLEY GEAR
TIMING BELT
(A)
(B)

Fig.2-3

2.4 Idler Cover, Idler, Center Gear, Brake, Brake Gear, Take-up Reel Disk, Pressure Arm, OHD Arm, Tension Band, B-Base, Tension arm, Supply Reel Disk

Notes:
1. Do not turn over the sub chassis with the idler cover removed.
2. To separate the sub chassis from the main chassis, remove only components marked @ and proceed with removal of "2.6 Sub Chassis and ED Arm".

■ Idler Cover (@)

(1) Release the spring (a) between the brake and sub chassis. (See Fig. 2-4)
(2) Release the spring (b) between the pressure arm and idler cover.
(3) Release the spring (c) between the B-base and idler cover.
(4) Remove 4 screws.

■ Idler (@), Center Gear

(5) Remove the idler. (See Fig. 2-4)
(6) Pull up the center gear.

■ Brake (@)

(5) Remove the brake. (See Fig. 2-4)

■ Brake Gear

(5) Pull up the brake gear. (See Fig. 2-4)

■ Take-up Reel Disk

(5) Pull up the take-up reel disk. (See Fig. 2-4)

■ Pressure Arm, OHD Arm

(5) Pull up the pressure arm. (See Fig. 2-4)
(6) Release the spring (d) between the sub chassis and OHD arm.
(7) Pull out the OHD arm.

Reinstallation procedure and caution:

1. The pressure arm and OHD arm must be installed in the positions shown in Fig. 2-6(B).
2. After reinstalling the OHD arm, be sure to perform the following mechanical adjustment.
   OHD ARM HEIGHT ADJUSTMENT

■ Tension Band, B-Base, Tension Arm

(5) Release the tension spring. (See Fig. 2-4)
(6) Remove 1 screw holding the tension band and B-base.
(7) Remove the tension band with the tension arm.
(8) Remove the tension band from the tension arm in the direction of the arrow. (See Fig. 2-5)

Reinstallation procedure and caution:

1. The tension arm and must be installed in the positions shown in Fig. 2-6(A).
2. After reinstalling the tension band and tension spring, be sure to perform the following mechanical adjustment.
   TENSION ARM POSITION ADJUSTMENT
   TENSION TORQUE CHECK/ADJUSTMENT

■ Supply Reel Disk

(9) Pull up the supply reel disk. (See Fig. 2-4)

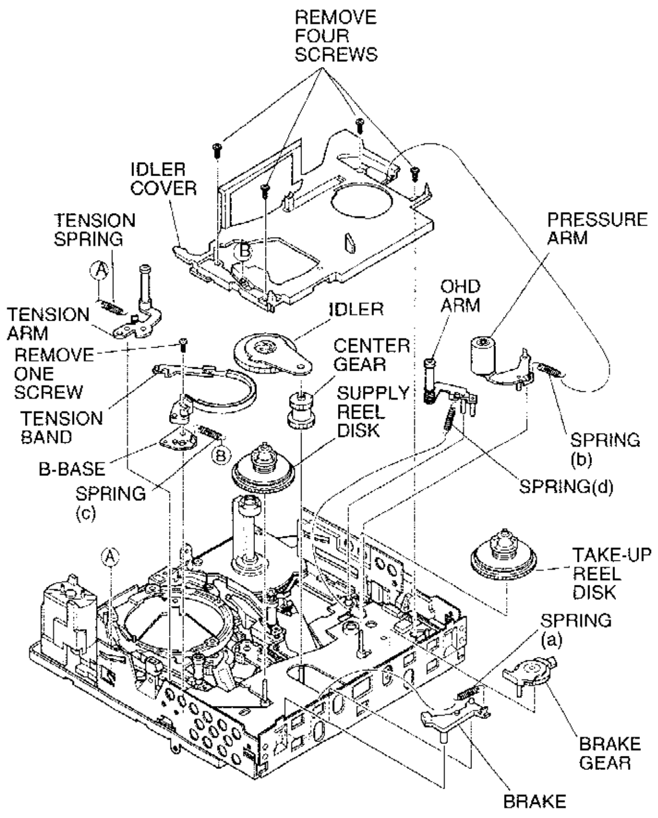

REMOVE FOUR SCREWS
IDLER COVER
TENSION SPRING
PRESSURE ARM
OHD ARM
IDLER
TENSION ARM
REMOVE ONE SCREW
CENTER GEAR
SUPPLY REEL DISK
TENSION BAND
B-BASE
SPRING (b)
SPRING(d)
SPRING (c)
Ⓐ
Ⓑ
TAKE-UP REEL DISK
SPRING (a)
BRAKE GEAR
BRAKE

Fig.2-4

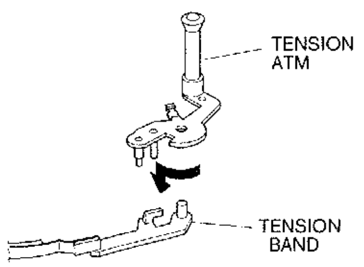

TENSION ATM
TENSION BAND

Fig.2-5

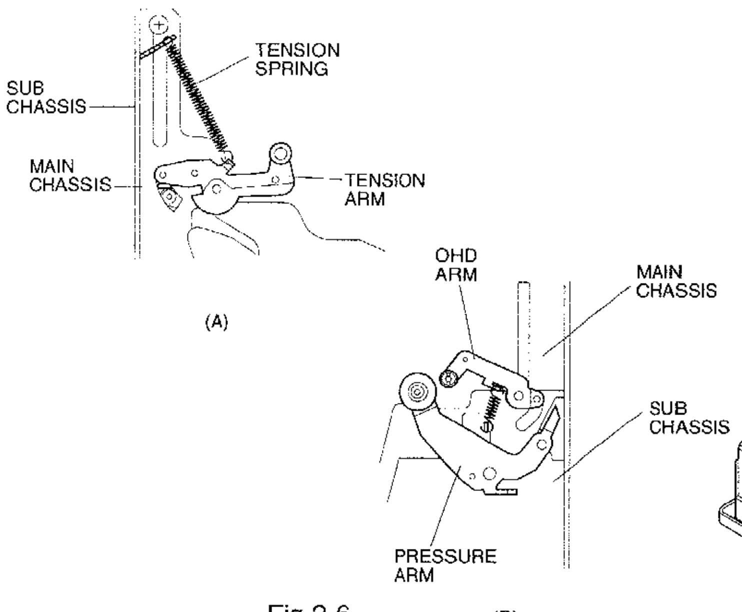

TENSION SPRING
SUB CHASSIS
MAIN CHASSIS
TENSION ARM
(A)
OHD ARM
MAIN CHASSIS
SUB CHASSIS
PRESSURE ARM

Fig.2-6 (B)

2.5 Mecha. Sensor Circuit Board

(1) Disconnect flat cable (See Fig. 2-7).
(2) Remove 4 screws.
(3) Remove 1 screws.

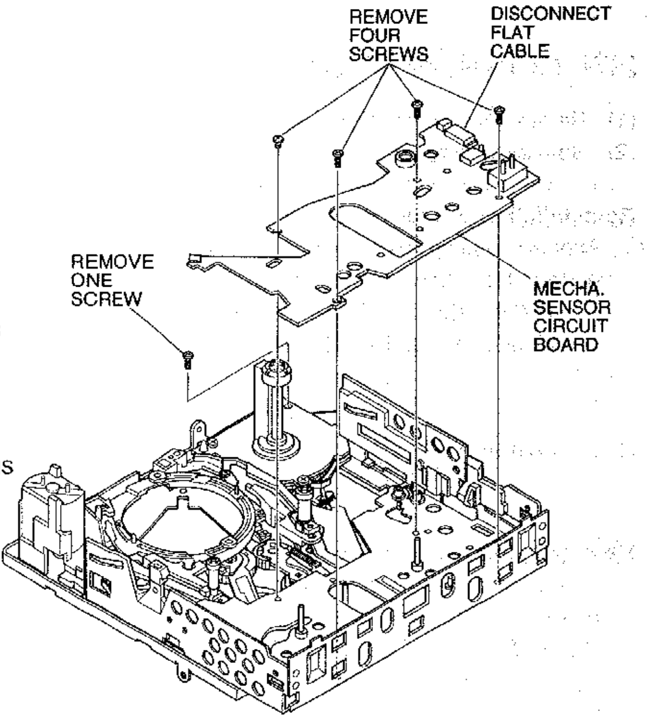

REMOVE FOUR SCREWS
DISCONNECT FLAT CABLE
REMOVE ONE SCREW
MECHA. SENSOR CIRCUIT BOARD

Fig.2-7

2.6 Sub Chassis, ED Arm

(1) Remove 2 screws. (See Fig. 2-8)
(2) Release linked sections (A) and (B) with the main chassis.
(3) Remove the ED Arm.

Reinstallation procedure and caution:

1. The ED arm must be installed in the position shown in Fig. 2-9(A).
2. Install the sub chassis so that sections (A) and (B) are linked with the main chassis. (See Fig. 2-8)
3. Install the sub chassis so that the projection of cam gear (B) and the screw are set to the positions shown in Fig. 2-9(B).

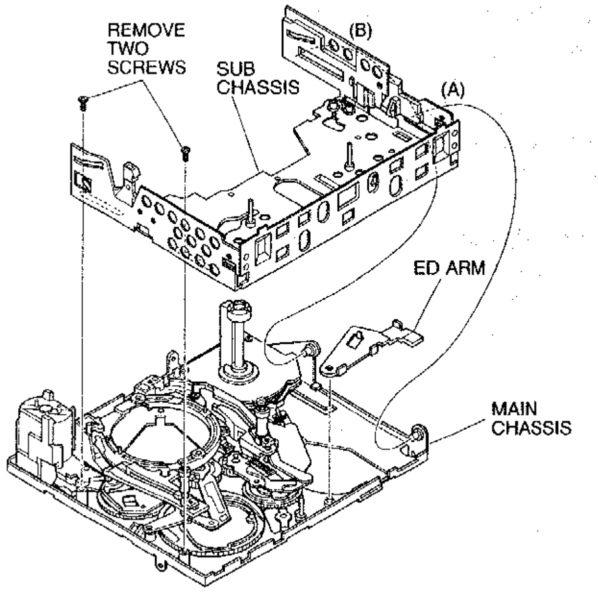

REMOVE TWO SCREWS
SUB CHASSIS
(B)
(A)
ED ARM
MAIN CHASSIS

Fig.2-8

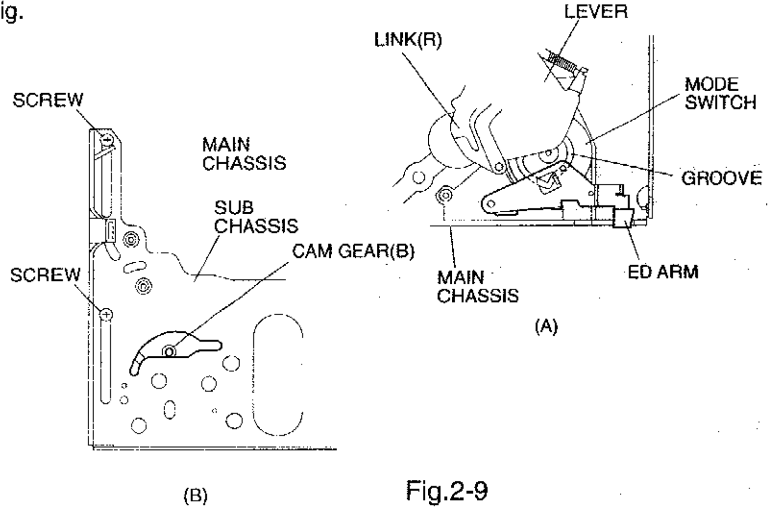

DRIVE LEVER
LINK(R)
MODE SWITCH
GROOVE
ED ARM
MAIN CHASSIS
(A)
SCREW
MAIN CHASSIS
SUB CHASSIS
CAM GEAR(B)
SCREW
(B)

Fig.2-9

2.7 Cylinder Base, Brush

(1) Remove 3 screws. (See Fig. 2-10)
(2) Remove 1 screw.

Reinstallation procedure and caution:

1. After reinstalling the cylinder base, be sure to perform the following mechanical adjustment.
   CYLINDER BASE HEIGHT ADJUSTMENT
   GUIDE ROLLERS HEIGHT ADJUSTMENT

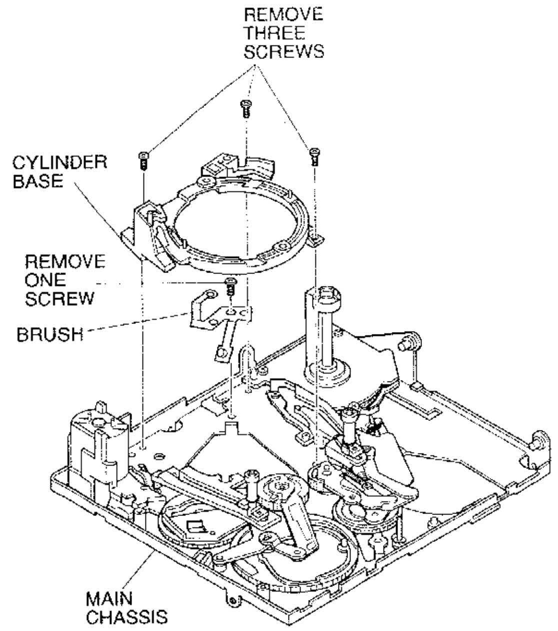

REMOVE THREE SCREWS
CYLINDER BASE
REMOVE ONE SCREW
BRUSH
MAIN CHASSIS

Fig.2-10

2.8 Guide Rail (I), Guide Roller (I), Guide Rail (O), Guide Roller (O)

Reinstallation procedure and caution:

1. After reinstalling the guide roller (I) or (o), be sure to perform the following mechanical adjustment.
   GUIDE ROLLERS HIGHT ROUGH ADJUSTMENT
   GUIDE ROLLERS HIGHT ADJUSTMENT

■ Guide Rail (I), Guide Roller (I)

(1) Remove 1 screw. (See Fig. 2-11)
(2) Turn guide rail (I) with guide roller (I) in the direction of the arrow (in parallel with the main chassis), to release guide roller (I) from link (L).
(3) Move guide roller (I) in the loading direction to remove it from guide rail (I).

■ Guide Rail (O), Guide Roller (O)

(1) Remove 2 screws. (See Fig. 2-11)
(2) Turn guide rail (O) with guide roller (O) in the direction of the arrow (in parallel with the main chassis), to release guide roller (O) from link (R).
(3) Move guide roller (O) in the loading direction to remove it from guide rail (O).

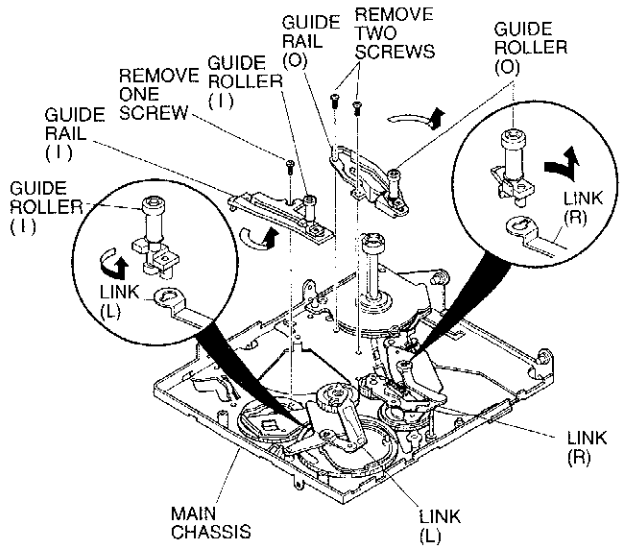

GUIDE RAIL (O)
REMOVE TWO SCREWS
GUIDE ROLLER (O)
REMOVE ONE SCREW
GUIDE ROLLER (I)
GUIDE RAIL (I)
GUIDE ROLLER (I)
LINK (L)
LINK (R)
LINK (R)
MAIN CHASSIS
LINK (L)

Fig.2-11

2.9 Loading Motor Holder (with Loading Motor), Capstan Motor

■ Loading Motor Holder

(1) Release 3 tabs. (See Fig. 2-12)

Reinstallation procedure and caution:

1. Make sure of gear phase. (See Figs. 2-14 and 2-15)
2. If guide rail (I) has been removed, install the loading motor holder before installing guide rail (I).

■ Capstan Motor

(1) Remove 2 screws. (See Fig. 2-12)
(2) Remove the timing belt

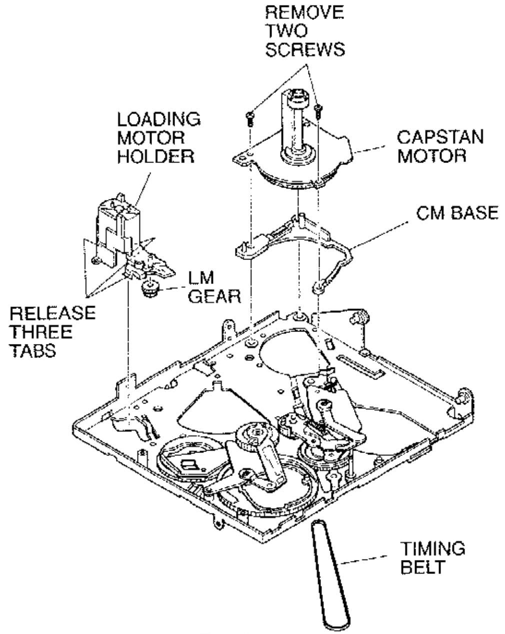

REMOVE TWO SCREWS
LOADING MOTOR HOLDER
CAPSTAN MOTOR
CM BASE
LM GEAR
RELEASE THREE TABS
TIMING BELT

Fig.2-12

2.10 Link (R), Link (L), Drive Lever, Cam Gear (C), Pressure Plate, Drive Arm, Operation Plate, Cam Gear(B), Cam Gear (A)

Reinstallation procedure and caution:

1. When installing either of the following components, install the mode switch and make sure of phase matching of gears. (See Figs. 2-14 and 2-15)
2. If the loading motor holder has been removed, install it after making sure of phase matching of gears as shown above.

■ Link (R), Link (L)

(1) Remove 1 washer (a) and remove the link (R). (See Fig. 2-13)
(2) Remove 1 washer (b) and remove the link (L).

■ Drive Lever, Cam Gear (C), Pressure Plate

Note: The spring between the drive lever and pressure plate is strong. Remove and reinstall it by the following procedure:

(3) Remove 1 washer (c). (See Fig. 2-13)
(4) Removing the drive lever from the main chassis, release the spring between the drive lever and pressure plate.
(5) Remove 1 washer (d) and remove the pressure plate.
(6) Remove 1 washer (e) and remove the cam gear (C).

Procedure for reinstalling drive lever and caution:

1. The loading motor and mode switch must be installed and gear phases matched.
2. Before installing the drive lever in the regular position (as shown in Fig. 2-15), hook the spring between the drive lever and pressure plate.
3. Fixing the pressure plate near the regular position (as shown in Fig. 2-15) with tweezers, etc., install the drive lever in the regular position.

■ Drive Arm, Operation Plate, Cam Gear (B), Cam Gear (A)

(3) Remove 1 washer (f) and remove the drive arm. (See Fig. 2-13)
(4) Remove the operation plate.
(5) Remove 1 washer (g) and remove the cam gear (B).
(6) Remove 1 washer (h) and remove the cam gear (A).

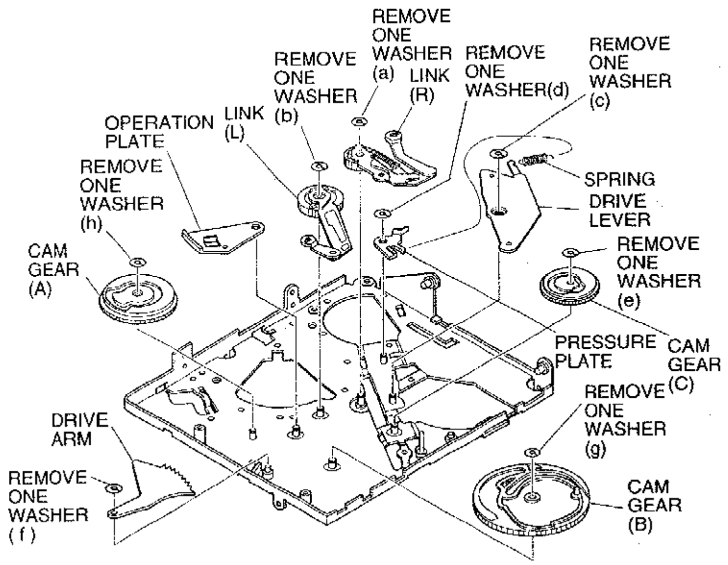

REMOVE ONE WASHER (a)
REMOVE ONE WASHER (b)
LINK (R)
REMOVE ONE WASHER(d)
REMOVE ONE WASHER (c)
OPERATION PLATE
LINK (L)
REMOVE ONE WASHER (h)
SPRING
DRIVE LEVER
CAM GEAR (A)
REMOVE ONE WASHER (e)
PRESSURE PLATE
CAM GEAR (C)
REMOVE ONE WASHER (g)
DRIVE ARM
REMOVE ONE WASHER (f)
CAM GEAR (B)

Fig.2-13

2.11 Gear Phase Matching Diagrams

The following diagrams show the phase matching of gears in the unloading stop state.

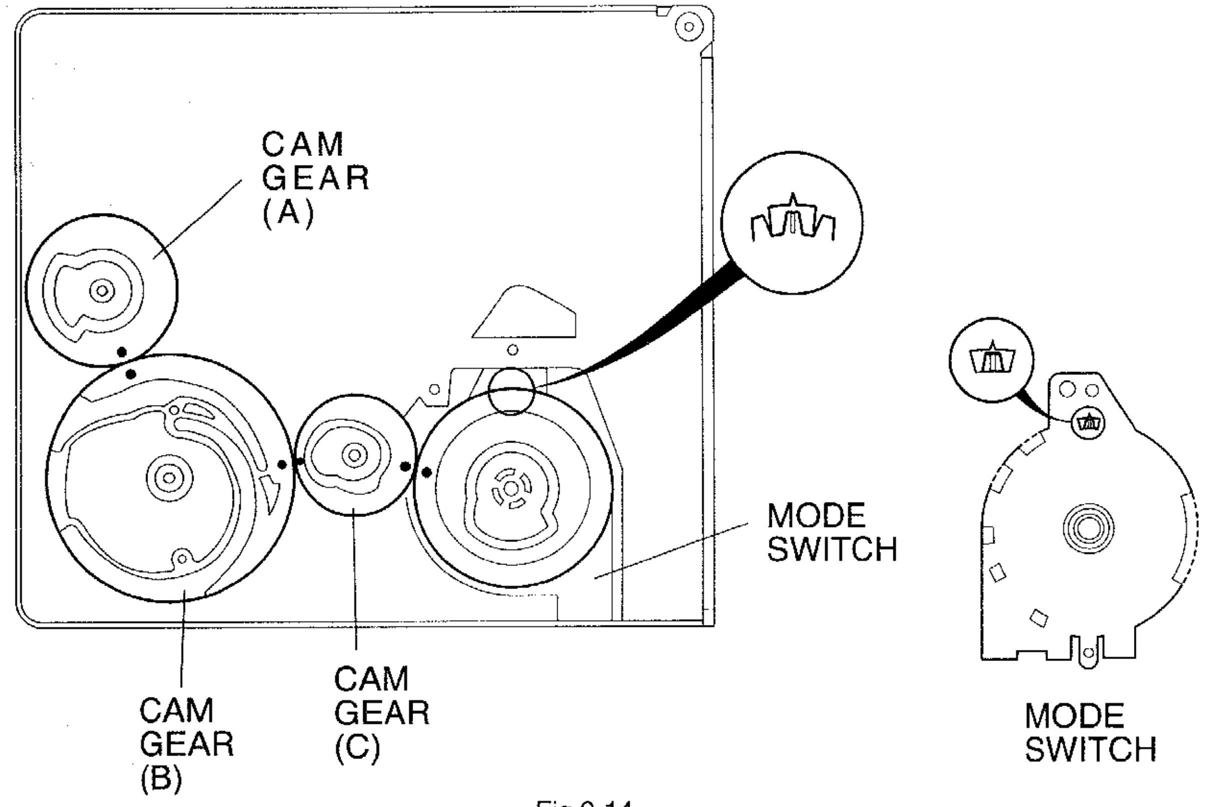

CAM GEAR (A)
MODE SWITCH
CAM GEAR (B)
CAM GEAR (C)
MODE SWITCH

Fig.2-14

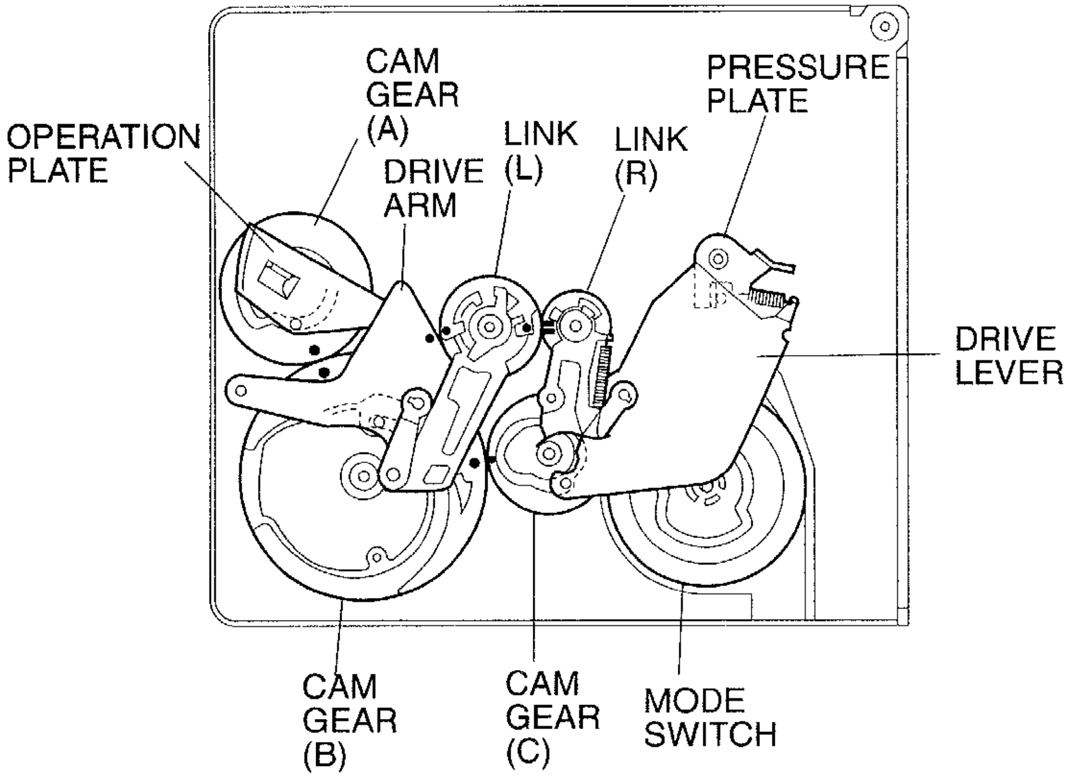

OPERATION PLATE
CAM GEAR (A)
DRIVE ARM
LINK (L)
LINK (R)
PRESSURE PLATE
DRIVE LEVER
CAM GEAR (B)
CAM GEAR (C)
MODE SWITCH

Fig.2-15

3. METHOD FOR MANUAL UNLOADING

CAUTION :

Perform this procedure for emergency only when normal unloading is not possible because the electrical circuits or loading motor is defective.

1) Release 2 tabs and pull out the loading motor from the loading motor holder. (See Fig. 3-1)

Note: The above removal is different from normal removal. In normal circumstances, remove the loading motor assembled with the loading motor holder. (The loading motor and loading motor holder comprise an assembly.)

2) Turn over the mechanism.

Note: Do not turn over with the idler cover removed.

3) Use a flat-bladed screwdriver, etc. to turn cam gear (A) or cam gear (B) in the directions of the arrows.

Notes: 1. Be careful not to damage the cam gears.
2. If tape is loaded, also turn the capstan motor manually to take up the tape.

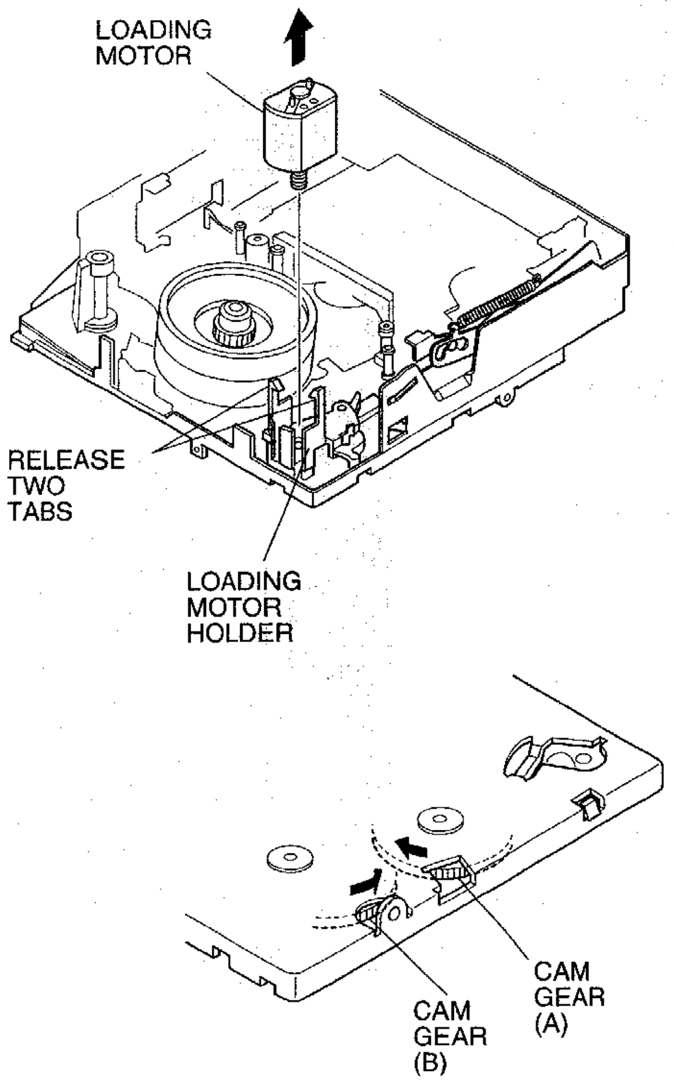
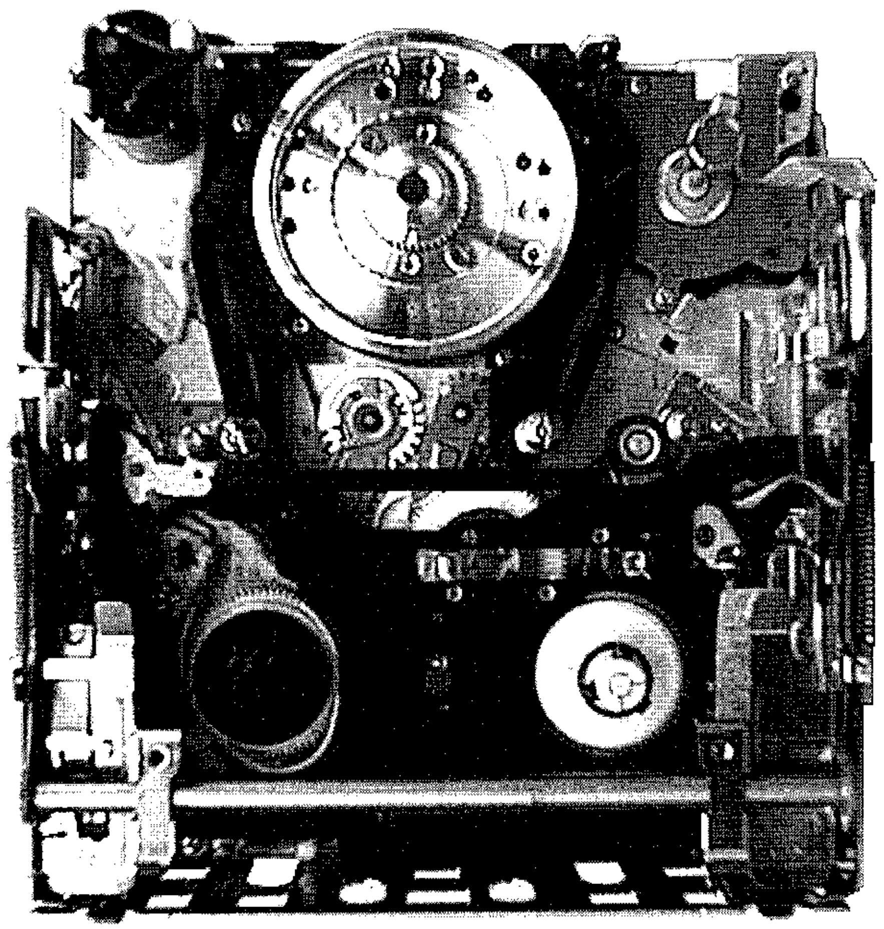

LOADING MOTOR
RELEASE TWO TABS
LOADING MOTOR HOLDER
CAM GEAR (A)
CAM GEAR (B)

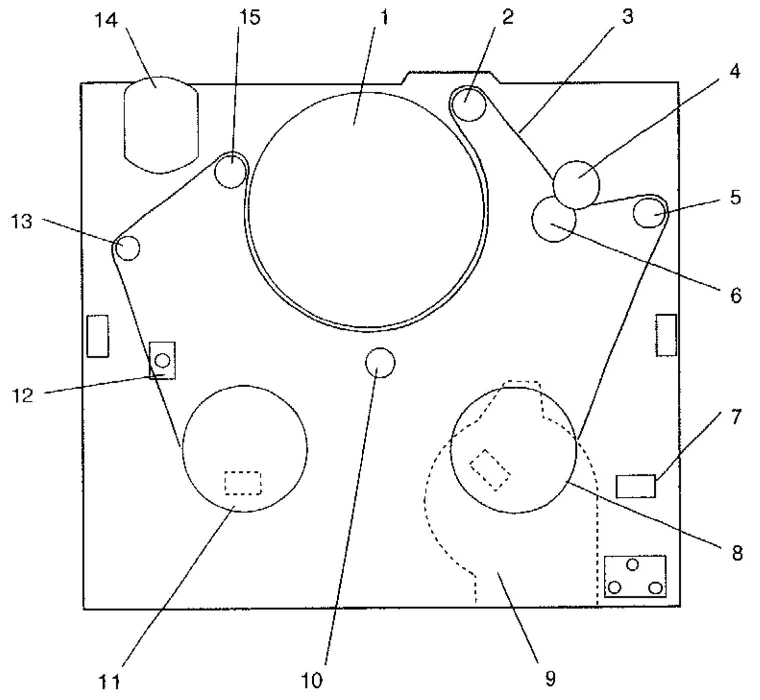
Fig.3-1

4. PHOTO OF THE MECHANISM



CHAPTER 2 MECHANICAL ADJUSTMENT

1. ADJUSTMENT POINTS ON THE MECHANISM



1. Cylinder
2. Guide Roller (O) [Take-up Guide Roller]
3. Tape
4. Capstan Motor
5. OHD Arm [Pull Out Arm]
6. Pressure Arm [Pressure Roller]
7. Cassette Holder Switch
8. Take-up Reel Disk
9. Mode Switch [Mechanism State Switch]
10. End LED
11. Supply Reel Disk
12. Tension Band Holder
13. Tension Arm [Tension Pole]
14. Loading Motor
15. Guide Roller (I) [Supply Reel Disk]

Fig. 1-1

2. BEFORE STARTING ADJUSTMENT

(1) See "CHAPTER 1 DISASSEMBLY" for dismantling and reassembling the mechanism, and matching phases of gears in assembly.

(2) The following describes the procedure for setting the mechanism to the playback mode without inserting a cassette (a circuit board that mounts mechanism drive circuits must be connected):
The playback mode cannot be kept by any of the following procedures because reel disks do not turn, etc.:
  1) Set the mechanism to the unloading stop or eject mode.
  2) Shade light from the end LEDs.
  3) Lower the cassette holder.
  4) Press the playback button.

(3) The following shows the procedure for loading and unloading the unassembled mechanism:
  1) Supply 4V DC to the terminals of loading motor:
  Red lead wire (+), brown lead wire (-): Loading
  Brown lead wire (+), red lead wire (-): Unloading

3. TAPE TRANSPORT SYSTEM CHECK/ADJUSTMENT

The tape transport system is a generic term for the path from the supply reel disk to the take-up reel disk via cylinder.

Notes: 1. The tape transport system is adjusted before shipment from the factory, so perform adjustments only when components of the transport system are replaced or adjustments of the transport system have drafted.
2. The tape transport components, especially the components which come into direct contact with the tape, should be kept clean without damage, dust or oil, etc. adhering to the contact surfaces.

3.1 Tension Arm Position Adjustment (Fig. 3-1)

Note: Be sure to perform these adjustment after reinstalling the tension arm, tension band, tension spring.

■ **Adjustment Point**
Tension Band Holder

■ **Procedure**

(1) Hook the tension spring to position (b) of the hook on the sub chassis. (See Fig. 3-1)
(2) Set to the playback mode without loading a cassette. (See Fig. 3-1)
(3) Loosen screw (A), and adjust the position of tension band holder so that the relation of position between the tension arm and square hole in the loading motor holder is as shown in Fig. 3-1.
(4) After unloading, perform loading and make sure that the square hole position has not drifted.

Note: After the adjustment is completed, be sure to perform "3.2 Tension Torque Check/Adjustment".

3.2 Tension Torque Check/Adjustment (Fig. 3-1)

Note: Be sure to perform these check/adjustment after adjusting the tension arm position adjustment.

■ **Test Equipment/Jig**
Cassette Torque Meter
(NTSC: SRK-8T-112, PAL: SRK-8T-212)

■ **State of VCR**
Load a cassette torque meter and set the playback mode.

■ **Adjustment Point**
Tension Spring

■ **Procedure**

(1) Hook the tension spring to position (b) of the hook on the sub chassis. (See Fig. 3-1)
(2) Check the torque meter on the supply side to 7 to 11 g-cm.
If it is more than 11.1 g-cm:
Move the tension spring to position (c).
If it is less than 6.9 g-cm:
Move the tension spring to position (a).

Note: If the tension spring hooking position has been moved, be sure to perform "3.1 Tension Arm Position Adjustment".

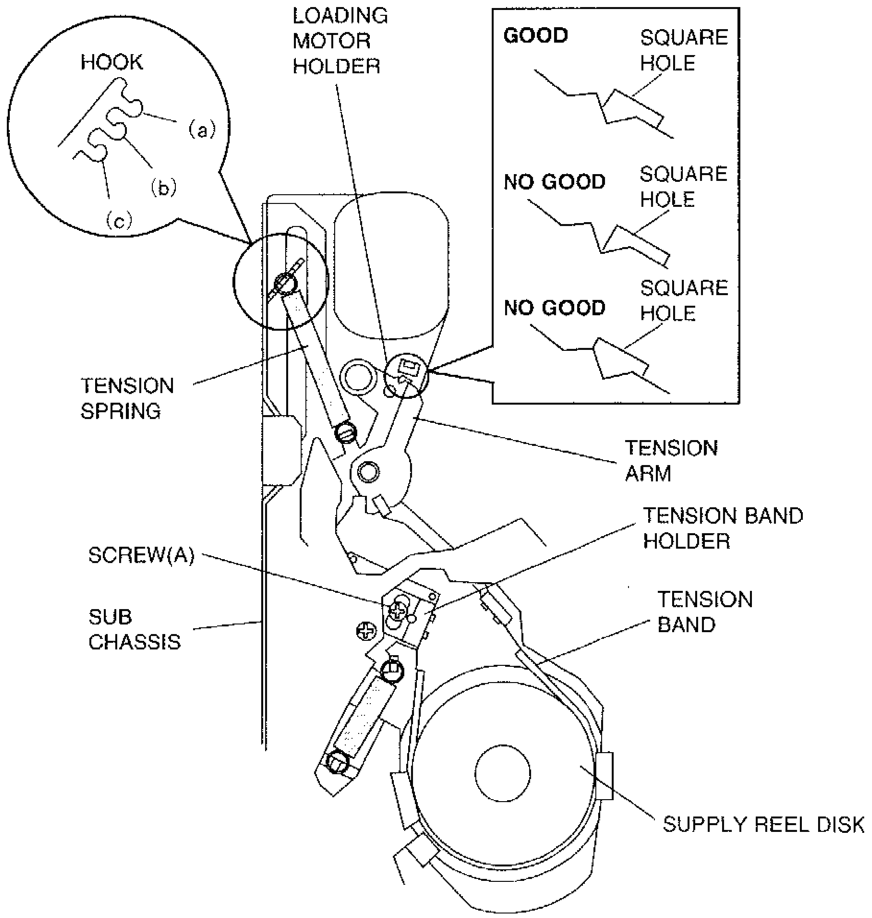

LOADING MOTOR HOLDER
HOOK
(a)
(b)
(c)
GOOD
SQUARE HOLE
NO GOOD
SQUARE HOLE
NO GOOD
SQUARE HOLE
TENSION SPRING
TENSION ARM
TENSION BAND HOLDER
SCREW(A)
SUB CHASSIS
TENSION BAND
SUPPLY REEL DISK

Fig. 3-1

3.3 Cylinder Base (Guide Roller Catchers) Height Adjustment (Fig. 3-2)

Note: Be sure to perform these adjustment after reinstalling the cylinder base.

Note: After this adjustment is completed, be sure to perform "3.5 Guide Roller Height Adjustment (Adjustment After Replacing the Cylinder)".

■ **Adjustment Point**
Screws on the Cylinder Base

■ **Procedure**

(1) Turn the two screws on the cylinder base (guide roller catchers) so that the specified values can be obtained as shown. (See Fig. 3-2)

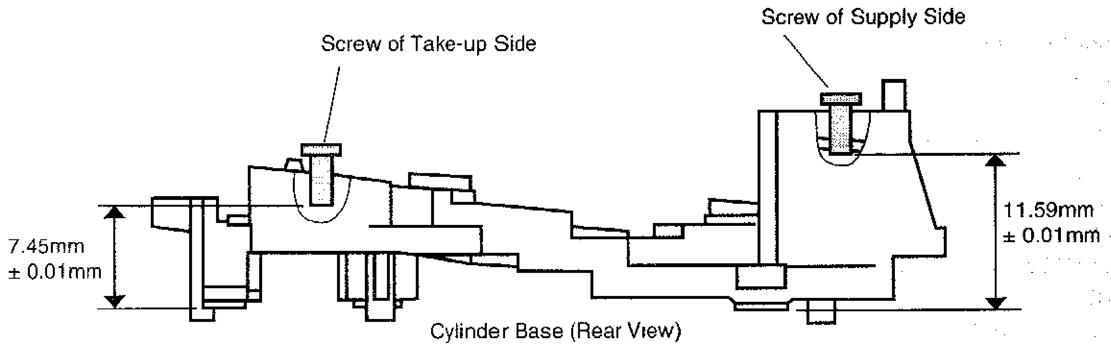

Screw of Take-up Side
Screw of Supply Side
7.45mm ± 0.01mm
11.59mm ± 0.01mm
Cylinder Base (Rear View)

Fig. 3-2

3.4 Guide Rollers Height Rough Adjustment (Fig. 3-3)

Note: Be sure to perform these adjustment after reinstalling the guide rollers.

■ **Test Equipment/Jig**
Special Drive

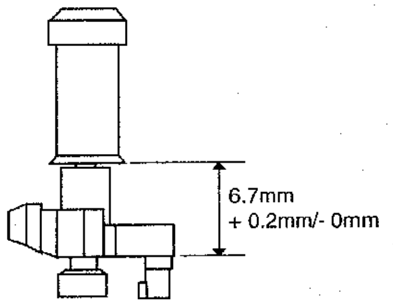
■ **Adjustment Point**
Top of the Guide Roller (I)
Top of the Guide Roller (O)

■ **Procedure**

(1) Turn the top of each guide roller so that the specified values can be obtained as shown. (See Fig. 3-3)

Note: After this adjustment is completed, be sure to perform "3.5 Guide Roller Height Adjustment (Adjustment After Replacing the Cylinder)".

Guide Roller (I) [Supply Guide Roller]


6.7mm
+ 0.2mm/- 0mm

Guide Roller (O) [Take-up Guide Roller]

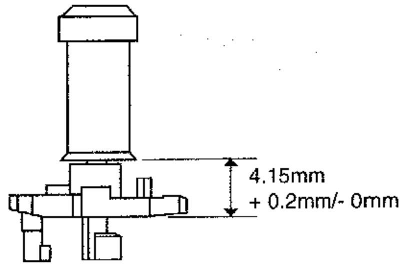

4.15mm
+ 0.2mm/- 0mm

Fig. 3-3

3.5 Guide Rollers Height Adjustment (Adjustment After Replacing Cylinder) (Figs. 3-4, 3-5)

Notes:
1. Be sure to perform this adjustment after reinstalling the guide rollers and cylinder base. Also note that before proceeding with this adjustment, the adjustment on the previous item must be completed.
2. After the cylinder is replaced, electrical circuit adjustments will also be necessary. See the service manual of each model.
3. Before performing this adjustment, refer to Fig. 3-5 and modify the ATF-R Jig.

■ Test Equipment/Jig

Alignment Tape
ATF-R Jig
(SW1: OFF, SW3: ON, RT1: Mechanical Center)
Oscilloscope
Special Drive

■ Test Point

TP1 (SW30/25) on ATF-R jig
TP2 (GND) on ATF-R jig
TP3 (FM OUT) on ATF-R jig

■ Adjustment Point

Top of the Guide Roller (I)
Top of the Guide Roller (O)

■ Procedure

(1) Loading an alignment tape that has been completely rewound.
(2) Set to the power off.
(3) Connect the ATF-R jig to the test terminal on the circuit board.
(4) Press the PLAY button and hold it, then set the POWER switch to VIDEO position.
(5) Connect an oscilloscope to TP3.
(6) Synchronize the oscilloscope with TP1.
(7) Set the oscilloscope to (+) slope.

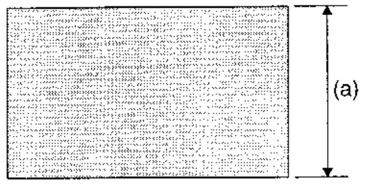
Guide Roller (I) (Fig. 3-4)

(8) Press SW2 on the ATF-R jig and hold it, then perform the following steps.
(9) Adjust the height of the guide roller (I) so the waveform is flat.
(10) Adjust the voltage level control of the oscilloscope so that portion (a) of the waveform is set to 4 graduations.
(11) Set SW1 on the ATF-R jig to ON.
(12) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is 1.8 ± 0.1V. Then check that point (b) of the waveform is set to 3 graduations.
(13) Adjust the height of the guide roller (I) so the minimum amplitude (c) of the waveform is set to more than 2 graduations.

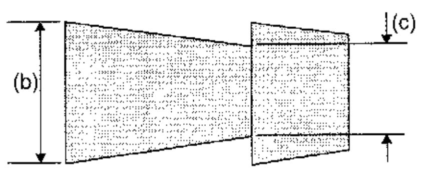
Guide Roller (O) (Fig. 3-4)

(14) Set SW1 to OFF and RT1 to mechanical center on the ATF-R jig.
(15) Set the oscilloscope to (-) slope.
(16) Perform the same procedure as for guide roller (I) hereafter. See steps (8) - (13).
(17) After completing adjustment of guide rollers (I) and (O), load the alignment tape again, and make sure that the content of this adjustment is satisfied.

Note: After adjustment is completed, be sure to disconnect the ATF-R jig from the test terminal and reverse the modification to ATF-R jig.

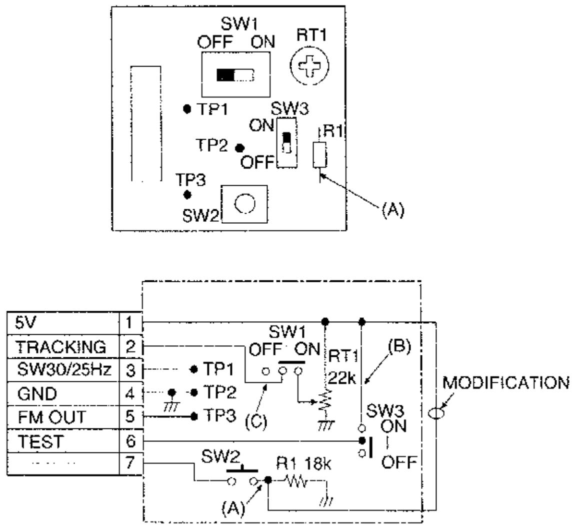


(a):4 graduations



(b):3 graduations
(c):More than 2 graduations

Fig. 3-4



Modification: Connect terminal (A) of the resistor and pin 1 (5V Line).

Fig. 3-5

3.6 OHD Arm Height Adjustment (Fig. 3-6)

Notes:
1. Be sure to perform this adjustment after reinstalling the OHD arm.
2. This adjustment minimizes minute twisting of tape that occurs between the OHD arm and capstan motor due to the structure of mechanism.
3. It is not necessary to modify the ATF-R jig.

■ Test Equipment/Jig

Alignments Tape
Blank Tape
ATF-R Jig (SW1: OFF, SW3: OFF)
Special Drive
Oscilloscope
Color Monitor TV

■ Test Point

Video Out
TP1 (SW30/25) on ATF-R jig
TP2 (GND) on ATF-R jig
TP3 (FM OUT) on ATF-R jig

■ State of VCR

Connect the color monitor TV to video out.
Connect the ATF-R jig to the test terminal on the circuit board.

■ Adjustment Point

Top of the OHD Arm

■ Procedure

(1) Turn power on.
(2) Load a blank tape that has been completely rewound.
(3) Set to the forward search mode.
(4) Carefully observe the tape between the OHD arm and capstan in a bright place, and make sure that minute twisting occurs on the tape. The color of tape (reflected image) at the twisted portion will appear different from the other portions. Also, twisting will look different on the left/right and up/down depending on the direction of incident light, as shown in Fig. 3-6.
(5) Adjust the height of OHD arm so that the widest portion where color of tape looks different is less than 0.5 mm.
(6) Make sure that no curling of tape occurs at either the top or the bottom flange of OHD arm. (However, even if some curling occurs at either flange, it can be judged in the allowable range if there is no scratch on the tape and there is no gap between the other flange and tape edge.)
(7) Load the blank tape that has been rewound again. Set to the forward and reverse search modes, and make sure that step (6) is satisfied.
(8) Connect an oscilloscope to TP3.
(9) Synchronize the oscilloscope with TP1.
(10) Set the oscilloscope to (+) slope.
(11) Play back the alignment tape. Set to forward search and reverse search modes, and make sure that the FM waveform does not collapse.
Also, make sure that noise bars do not fluctuate up and down on the monitor screen.
(12) If step (11) cannot be done, turn the screw on the take-up side of the cylinder base (see Fig. 3-2) counterclockwise by approx. 45°, and then perform this adjustment from the start, after doing "3.5 Guide Roller Height Adjustment (Adjustment After Replacing the Cylinder)".

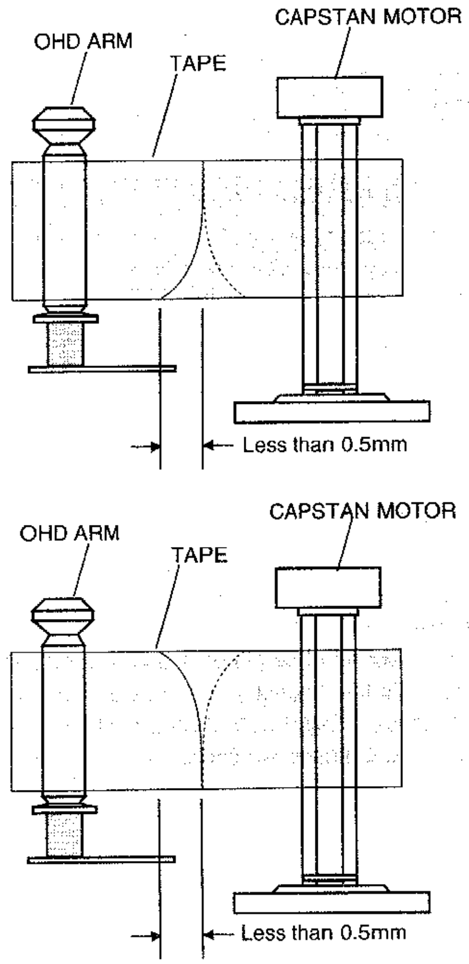


Fig. 3-6

4. CHECK THE TORQUE

There are two types of cassette torque meter.
Choose the applicable one for the measurement to be performed.

Item	**VCR Mode**	**Measured Reel Disk**	**Torque Value**	**Torque Cassette Used**
Take-up Torque	Playback	Take-up	10 ± 3 g-cm	NTSC: SRK-8T-112 or 132 PAL: SRK-8T-212 or 232
Rewind Torque	Reverse Search	Supply	31 ± 6 g-cm	NTSC: SRK-8T-132 PAL: SRK-8T-232
Take-up Brake Torque	Reverse Search to Stop	Take-up	10g-cm or more	NTSC: SRK-8T-112 or 132 PAL: SRK-8T-212 or 232
Slack Removal Torque	Unloading	Supply	25-50 g-cm	NTSC: SRK-8T-132 PAL: SRK-8T-232

CHAPTER 3 MAINTENANCE/INSPECTION PROCEDURE

1. REQUIRED MAINTENANCE

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise to ensure compatible with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure a good picture, periodic inspection and maintenance, including replacement of worn-out parts and lubrications, is necessary.

2. SCHEDULED MAINTENANCE

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is done every 500 hours. Table 1 shows the relation between time used per day and inspection period.

Table 1

	When inspection is necessary		
Average hours used per day	About 6 months ↓	About 9 months ↓	About 18 months ↓
One hour	▭	▭	▭
Two hours	▭	▭	
Three hours	▭		

3. CHECK BEFORE STARTING REPAIRS

The faults occurring in the playback picture as shown in Table 2 can be remedied by cleaning and oiling. Check the need for lubrication and the conditions of cleanliness in the unit. Check with the customer to find out how often the unit is used. If from that you determine that the unit is ready for inspection and maintenance, check the parts shown in Table 2.

Table 2

Phenomenon	**Inspection Location**
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, cylinder or in tape transport system
Vertical jitter	Dirt on video head or in tape transport system
Low volume or sound distorted	Dirt on video head or worn video head

4. TOOLS NEEDED FOR INSPECTION AND MAINTENANCE

(1) Head cleaning kit
(2) VCR oil and grease (Table 3)
(3) Alcohol
(4) Gauze
(5) Cleaning tape 〔Maxell 8M-CL MCA (dry type)〕

Table 3 Locations for Greasing and Oiling

Name	**Oil or Greasing Location**
Sonic Slidas Oil (#1600)	Oil low-speed rotating sections
Froil (G31-SA)	Lubricate metal or molded section under light load
Molicoat (PG-641)	Lubricate metal or molded sections under light load
Lock paint	Fix adjustment screws and nuts.

5. MAINTENANCE PROCEDURE

5.1 Cleaning

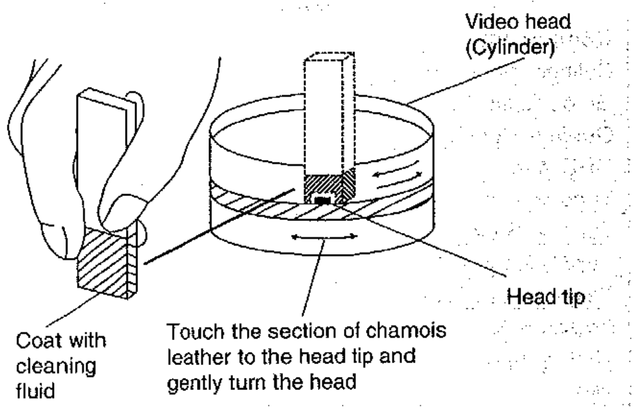
5.1.1 Cleaning Video Head

First use a cleaning tape. Be sure to use the specified cleaning tape and read its instruction sheet carefully before using it. If dirt on head is too stubborn to remove by tape, use the cleaning kit. Moisten the cleaning stick with cleaning fluid at the point indicated. Touch the stick to the head tip and gently turn the head (rotating cylinder) to the right and left. (Do not move the stick vertically and make sure that only the chamois leather on the stick comes into contact with the head. Otherwise, the head may be damaged.) Thoroughly dry the head. Then test run a tape. If cleaning fluid remains on the video head, the tape may be damaged when it comes into contact with the head surface.

5.1.2 Cleaning the Tape Transport System and Drive System, etc.

Wipe with gauze moistened with alcohol.

Notes: 1. The tape transport system is the system which comes into contact with the running tape. The drive system consists of those parts which run the tape.
2. Make sure that during cleaning you do not touch the tape transport system with the tip of a screwdriver and that no force is applied to the system that could deform it.



Touch the section of chamois leather to the head tip and gently turn the head

5.2 Lubrication

5.2.1 Guide Lines for Lubricating with Oil

Use the oiler to apply one or two drop or Sonic Slidas oil. Make sure not to use too match oil because it may spill over or leak out coming into contact with rotating parts and causing slippage or other problems. If too much oil is applied, wipe clean with a alcohol.

5.2.2 Periodic Oil Lubrication

Lubricate the specified locations only when replacing components. Refer to the exploded views for the lubricating locations.

5.3 Greasing

5.3.1 Greasing Guide Lines

Apply grease Froil or Molicoat, with a stick or brush.
Do not use excess grease. It may come into contact with the tape transport or drive system. Wipe any excess and clean with gauze moistened with alcohol.

5.3.2 Periodic Greasing

Grease the specified locations only when replacing components. Refer to the exploded views for the greasing locations.

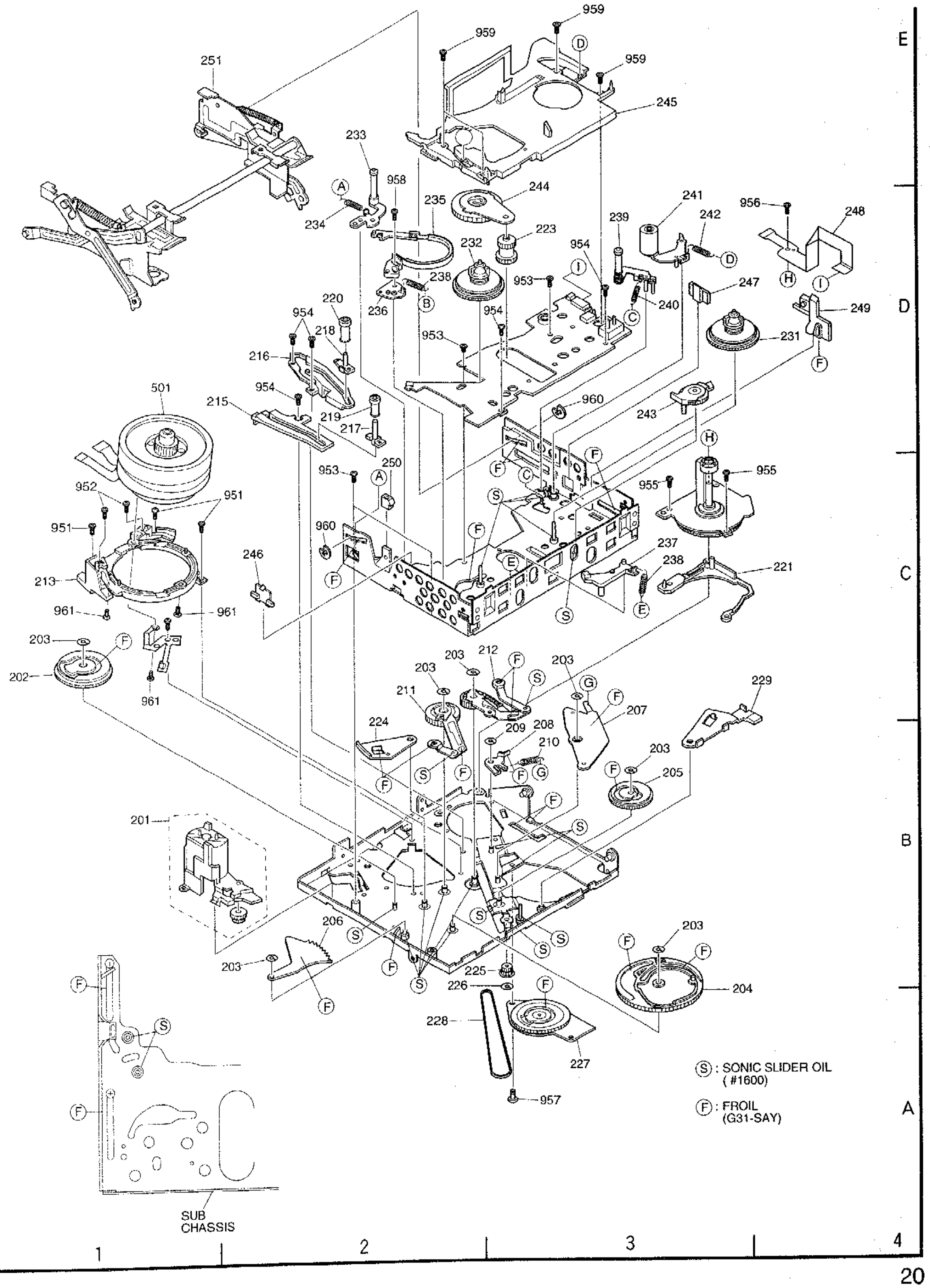
Table 4 Parts to be Maintained/Inspected and Maintenance/Inspection Schedules

Caution: The following table does not apply to all units. The maintenance/inspection schedules depend on how the unit is used and the environment in which it is used.

Hours / Component	500	1000	1500	2000	2500	3000
Cylinder (Video Head)	C	C／R	C	C／R	C	C／R
Guide Roller (I)	C	C	C	C	C	C
Guide Roller (O)	C	C	C	C	C	C
OHD Arm	C	C	C	C	C	C
Tension Arm	C	C	C	C	C	C
Tension Band		R		R		R
Supply Reel Disk	C	C	C	C／R	C	C
Take-up Reel Disk	C	C	C	C／R	C	C
Pressure Arm	C	C	C	C／R	C	C
Timing Belt				R		
Idler				R		
Capstan Motor (Shaft)	C	C	C	C／R	C	C
Loading Motor				R		

C : Cleaning
R : Parts Replacing

MECHANISM


E
D
C
B
A
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2
3
4
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959
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251
245
233
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225
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228
227
957
203
204
SUB CHASSIS
S : SONIC SLIDER OIL (#1600)
F : FROIL (G31-SAY)

UH MECHANISM

HITACHI

UH MECHANISM

UH MECHANISM TK No.6811E Image & Information Media Systems Division, Tokai

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HITACHI

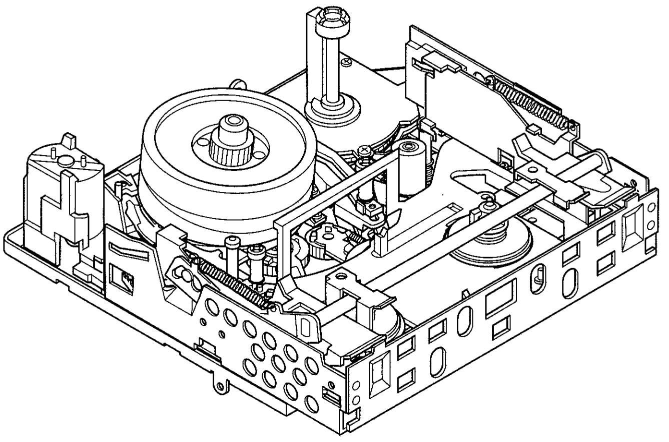
SERVICE MANUAL

TK | No.6811E-1

UH MECHANISM

SUPPLEMENT

Mechanical Adjustment



"Mechanical Adjustment" in the UH MECHANISM Service Manual (No. 6811E) has been revised.
Refer to this manual, in place of the previous "Mechanical Adjustment".

8

Hi8

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

December 1999 Digital Media Products Division,Tokai

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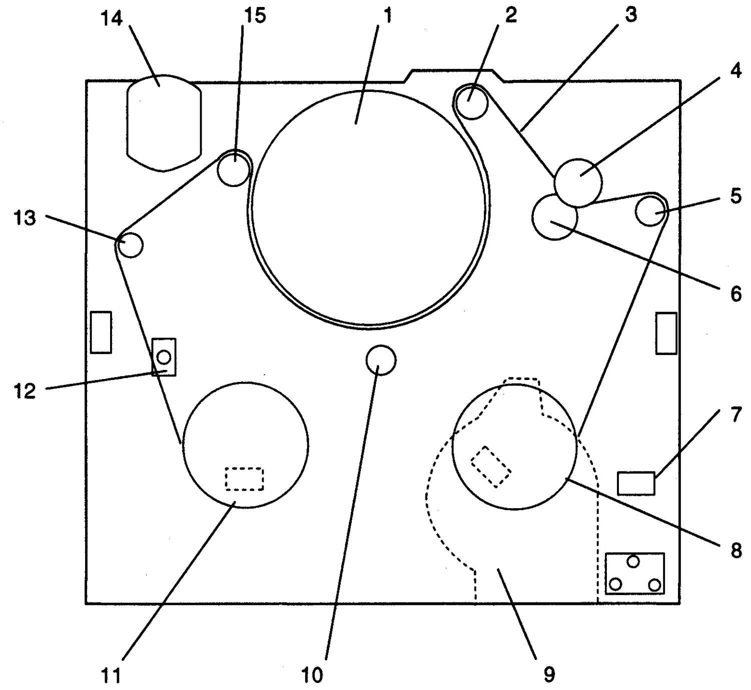
For Torque Value

Torque values are indicated in conventional units in this manual, along with SI units in brackets [ ].

Note: SI stands for Le Système international d'unités in French, which is an internationally unified measurement unit system.

CHAPTER 2 MECHANICAL ADJUSTMENT

1. ADJUSTMENT POINTS ON THE MECHANISM



1. Cylinder
2. Guide Roller (O) [Take-up Guide Roller]
3. Tape
4. Capstan Motor
5. OHD Arm [Pull Out Arm]
6. Pressure Arm [Pressure Roller]
7. Cassette Holder Switch
8. Take-up Reel Disk
9. Mode Switch [Mechanism State Switch]
10. End LED
11. Supply Reel Disk
12. Tension Band Holder
13. Tension Arm [Tension Pole]
14. Loading Motor
15. Guide (I) [Supply Guide]

Fig. 1-1

2. BEFORE STARTING ADJUSTMENT

(1) See "CHAPTER 1 DISASSEMBLY" for dismantling and reassembling the mechanism, and matching phases of gears in assembly.

(2) The following describes the procedure for setting the mechanism to the playback mode without inserting a cassette (a circuit board that mounts mechanism drive circuits must be connected):
The playback mode cannot be kept by any of the following procedures because reel disks do not turn, etc.:
   1) Set the mechanism to the unloading stop or eject mode.
   2) Shade light from the end LEDs.
   3) Lower the cassette holder.
   4) Press the playback button.

(3) The following shows the procedure for loading and unloading the unassembled mechanism:
   1) Supply 4V DC to the terminals of loading motor:
   Red lead wire (+), brown lead wire (-): Loading
   Brown lead wire (+), red lead wire (-): Unloading

3. TAPE TRANSPORT SYSTEM CHECK/ADJUSTMENT

The tape transport system is a generic term for the path from the supply reel disk to the take-up reel disk via cylinder.

Notes: 1. The tape transport system is adjusted before shipment from the factory, so perform adjustments only when components of the transport system are replaced or adjustments of the transport system have drafted.

2. The tape transport components, especially the components which come into direct contact with the tape, should be kept clean without damage, dust or oil, etc. adhering to the contact surfaces.

3.1 Tension Arm Position and Tension Torque Check (Fig. 3-1)

Notes: 1. This item is an operation check for periodic maintenance. Check the following, and only when adjustment is necessary, proceed with adjustment in next item.

2. Adjustment is unconditionally necessary after replacing the tension arm, tension band or tension arm spring. Proceed with adjustment in next item.

■ Test Equipment/Jig

Cassette Torque Meter (SRK-8T-112 or 212)

■ Procedure

(1) Make sure that the tension arm spring is hooked onto hook (b) on the subchassis. (Fig. 3-1)

(2) Set the camcorder to the playback mode without inserting a cassette. (See the previous page.)

[Check item 1]

(3) After setting to the rewind mode, set the camcorder to the playback mode. Make sure that the tension arm moves in the direction of arrow (B).

[Check item 2]

(4) Insert the cassette torque meter, set to the playback mode, and make sure that the value on the supply side is 8-10 g-cm [0.00078-0.00098 N·m].

(5) Proceed with adjustment in next item only when the check items are not satisfied.

3.2 Tension Arm Position and Tension Torque Adjustment (Fig. 3-1, 3-2)

Notes: 1. Be sure to perform this adjustment after replacing the tension arm, tension band or tension arm spring. When the tension arm or tension spring must be replaced, also replace the tension band.

2. Be sure to replace the tension band before performing this adjustment.

■ Test Equipment/Jig

Cassette Torque Meter (SRK-8T-112 or 212)

■ Adjustment Point

Band Bracket (B)

■ Procedure

(1) Attach all parts. Loosen screw (E).

(2) Hook the tension arm spring onto hook (b) on the subchassis. (Fig. 3-1)

(3) Set the camcorder to the playback mode without inserting a cassette. (See the previous page.)

(4) Make sure that the tension arm fully moves in the direction of arrow (A).

(5) Check the position relationship between the tension arm and the square hole in the loading motor holder (initial position). [Fig. 3-2 (initial position)]

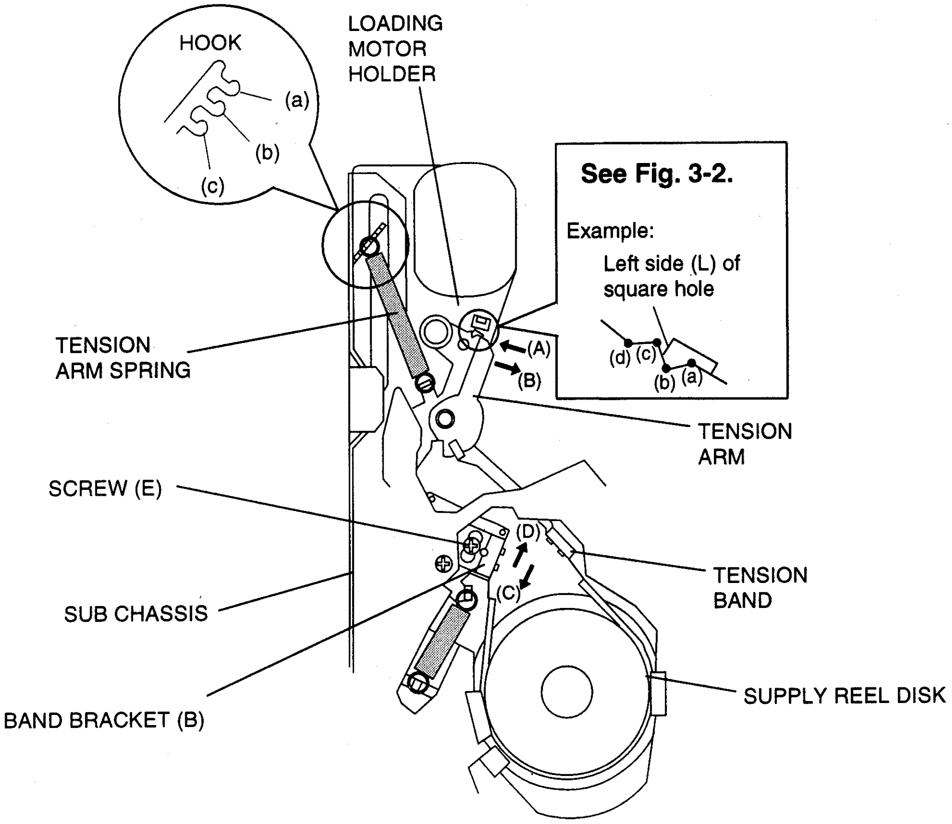


Fig. 3-1

(6) Adjust the position of band bracket B according to the initial position so that the relationship between the tension arm and the square hole in the loading motor holder is as shown in Fig. 3-2 (adjustment position).

(7) Tighten screw (E) to temporarily fix band bracket B so that it does not move.

[Check item 1]

(8) After setting to the rewind mode, set the camcorder to the playback mode. Make sure that the tension arm moves in the direction of arrow (B).

[Check item 2]

(9) Insert the cassette torque meter, set to the playback mode, and make sure that the value on the supply side is 8-10 g-cm [0.00078-0.00098 N·m].

(10) If both two check items are satisfied, remove the cassette torque meter, and additionally tighten screw (E), taking care that band bracket B does not move, to complete adjustment.

Note: If both or either check item is not satisfied, proceed with the following adjustment (countermeasures):

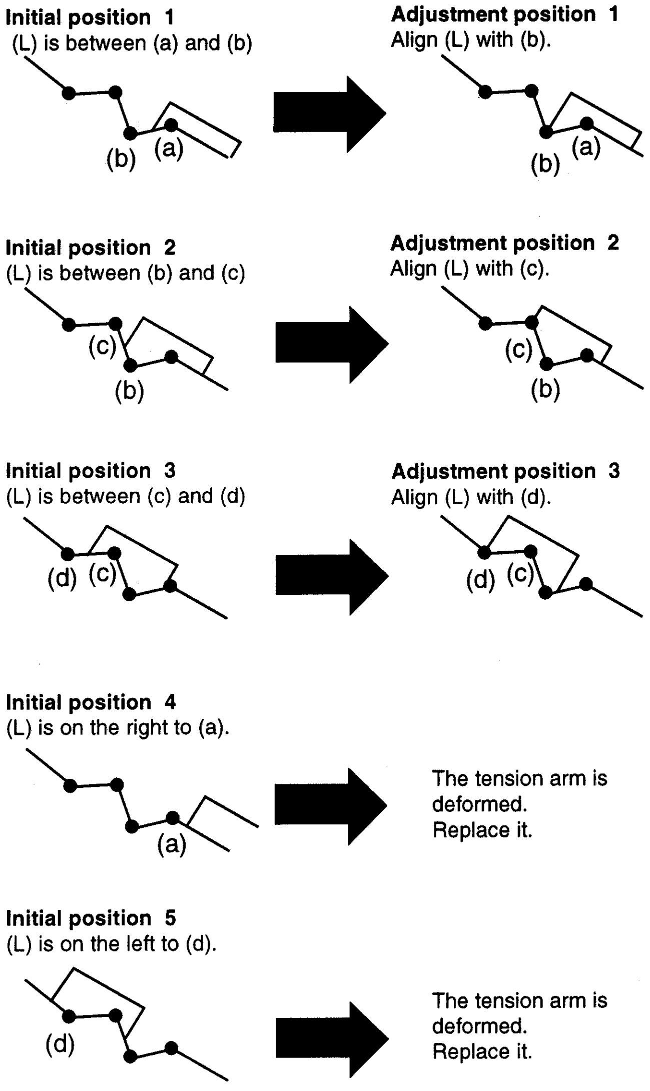

Initial position 1
(L) is between (a) and (b)
(b)
(a)
Adjustment position 1
Align (L) with (b).
(b)
(a)
Initial position 2
(L) is between (b) and (c)
(c)
(b)
Adjustment position 2
Align (L) with (c).
(c)
(b)
Initial position 3
(L) is between (c) and (d)
(d)
(c)
Adjustment position 3
Align (L) with (d).
(d)
(c)
Initial position 4
(L) is on the right to (a).
(a)
The tension arm is deformed. Replace it.
Initial position 5
(L) is on the left to (d).
(d)
The tension arm is deformed. Replace it.

Fig. 3-2

When only check item 1 is faulty:

Fine adjust the position of band bracket B in the direction of arrow (D). Make sure of check items 1 and 2 again.

When only check item 2 is faulty:

If the torque is higher than the specified value, fine adjust the position of band bracket B in the direction of arrow (C), and then make sure of check items 1 and 2 again.

When both check items 1 and 2 are faulty:

If the torque is lower than the specified value, fine adjust the position of band bracket B in the direction of arrow (D), and then make sure of check items 1 and 2 again.

Notes: 1. If both check items 1 and 2 are not satisfied after the above countermeasures, check the tension band and tension arm spring, and if necessary, replace either or both.

2. Do not change the hooking position of the tension arm spring.

3.3 Coarse Adjustment of Guide Roller (O) and Guide (I) Heights (Fig. 3-3)

Note: Be sure to perform this adjustment after replacing the O guide roller or I guide.

■ **Test Equipment/Jig**

Sepcial Driver

■ **Adjustment Point**

Top of the Guide (I)

Top of the Guide Roller (O)

■ **Procedure**

(1) Screw in the guide roller (O) or guide (I) into each base, make surface (A) of guide roller (guide) in contact with surface (B) of base, and then loosen the guide roller (O) or guide (I) by approx. 360°.

Note: After this adjustment is completed, be sure to perform "3.4 Adjustment of Guide Roller (O) and Guide (I) Heights (Adjustment After Replacing Cylinder)".

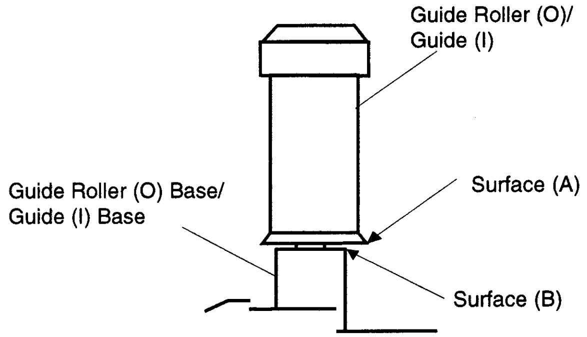

Guide Roller (O)/
Guide (I)
Surface (A)
Guide Roller (O) Base/
Guide (I) Base
Surface (B)

Fig. 3-3

3.4 Guide Roller (O) and Guide (I) Heights Adjustment (Adjustment After Replacing Cylinder) (Fig. 3-4 - 3-6)

Notes:
1. Be sure to perform this adjustment after replacing the guide roller (O), guide (I) or cylinder base. After replacing the guide roller (O) or guide (I), perform the coarse adjustment in the previous item in advance.
2. When the cylinder is replaced, the electric circuit adjustment is also necessary. See the service manual of this model and also perform electrical circuit adjustment.
3. Before starting adjustment, modify the ATF-R jig, referring to Fig. 3-6.

■ Test Equipment/Jig

Alignment Tape
ATF-R Jig
Oscilloscope
Special Driver

■ Test Point

TP1 (SW30/25) on ATF-R jig
TP2 (GND) on ATF-R jig
TP3 (FM OUT) on ATF-R jig

■ Adjustment Point

Top of the Guide (I)
Top of the Guide Roller (O)

■ Procedure

(1) Insert the alignment tape which has been completely rewound, and set the camcorder to the test mode by the following procedure.

[To set to the test mode]

1) Remove the power supply (adapter, battery, etc.).
2) Set the power switch to the VCR position.
3) Connect the ATF-R jig to the test terminal (test connector), supply power again with the playback button held down.

Notes:
1. If the mechanism operates (enters the playback mode) when power is supplied, it indicates that the camcorder has not been set to the test mode. Start from item 1) over.
2. The test mode is released when the power supply is removed.

(2) Connect an oscilloscope to TP3 and press the playback button.
(3) Synchronize the oscilloscope with TP1 (SW30/25).
(4) Set the oscilloscope probe to (+).

Guide (I) (Fig. 3-4)

(5) Holding down SW2 on the ATF-R jig, perform the following steps.
(6) Adjust the height of guide (I) so that the waveform is flat.
(7) Adjust the voltage control on the oscilloscope so that amplitude (a) of the waveform is set to 4 graduations.
(8) Set SW1 on the ATF-R jig to ON.
(9) Turn RT1 on the ATF-R jig, and make sure that the waveform changes while it is flat. If this cannot be confirmed, fine adjust the height of guide (I), to satisfy the condition.

Guide Roller (O) (Fig. 3-5)

(10) Set SW1 on the ATF-R jig to OFF.
(11) Set the oscilloscope probe to (-).
(12) Adjust the voltage control on the oscilloscope so that amplitude (b) of the waveform is set to 4 graduations.
(13) Turn RT1 on the ATF-R jig counterclockwise so that the voltage at section (C) (pin 2) on the ATF-R jig is 1.1 ± 0.1 V. Make sure that amplitude (b) of the waveform is set to 3 graduations.
(14) Adjust the height of guide roller (O) so that minimum amplitude (c) of the waveform is set to 2 ± 0.3 graduations.
(15) After adjusting the heights of guide (I) and guide roller (O), reinsert the alignment tape, and make sure that the contents of this adjustment are satisfied.

Note: After adjustment is completed, perform the following:
1) Remove the ATF-R jig from the test terminal (test connector), and release its modification.
2) Remove the power supply to release the test mode.
3) Make sure of adjustment items in step (7) and after of "3.5 OHD Arm Height Adjustment".

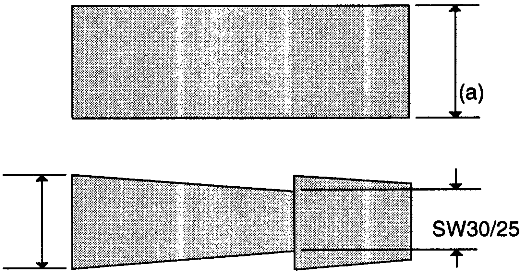


Fig.3-4

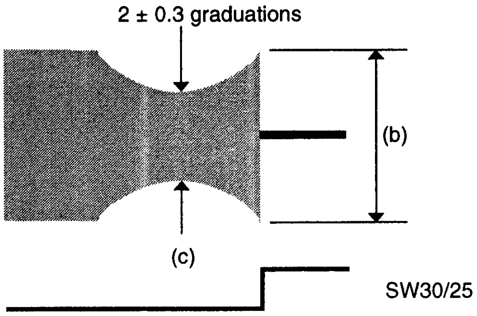
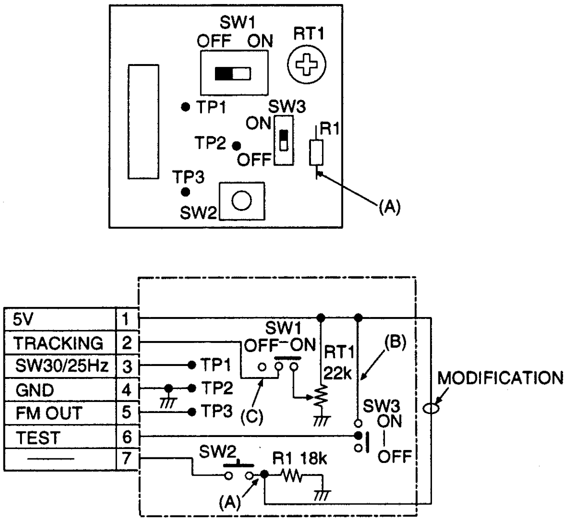


Fig.3-5



Modification: Connect terminal (A) of the resistor and pin 1 (5V).

Fig. 3-6

3.5 OHD Arm Height Adjustment (Fig. 3-7)

Notes: 1. Be sure to perform this adjustment after reinstalling the OHD arm.

2. After the heights of O guide roller/I guide are adjusted or the capstan motor is replaced, make sure of adjustment items in step (7) and after. If the contents are not satisfied, perform this adjustment from step (1).
3. This adjustment minimizes minute twisting of tape that occurs between the OHD arm and capstan motor due to the structure of mechanism.
4. It is not necessary to modify the ATF-R jig.

■ Test Equipment/Jig

Alignments Tape
Blank Tape
ATF-R Jig (SW1: OFF, SW3: OFF)
Special Driver
Oscilloscope
Color Monitor TV

■ Test Point

Video Out
TP1 (SW30/25) on ATF-R jig
TP2 (GND) on ATF-R jig
TP3 (FM OUT) on ATF-R jig

■ State of VCR

Connect the color monitor TV to video out.
Connect the ATF-R jig to the test terminal on the circuit board.

■ Adjustment Point

Top of the OHD Arm

■ Procedure

(1) Turn power on.
(2) Load a blank tape that has been completely rewound.
(3) Set to the forward search mode.
(4) Carefully observe the tape between the OHD arm and capstan in a bright place, and make sure that minute twisting occurs on the tape. The color of tape (reflected image) at the twisted portion will appear different from the other portions. Also, twisting will look different on the left/right and up/down depending on the direction of incident light, as shown in Fig. 3-7.
(5) Adjust the height of OHD arm so that the widest portion where color of tape looks different is less than 0.5 mm.
(6) Make sure that no curling of tape occurs at either the top or the bottom flange of OHD arm. (However, even if some curling occurs at either flange, it can be judged in the allowable range if there is no scratch on the tape and there is no gap between the other flange and tape edge.)
(7) Load the blank tape that has been rewound again. Set to the forward and reverse search modes, and make sure that step (6) is satisfied.
(8) Connect an oscilloscope to TP3.
(9) Synchronize the oscilloscope with TP1.
(10) Set the oscilloscope to (+) slope.
(11) Play back the alignment tape. Set to forward search and reverse search modes, and make sure that the FM waveform does not collapse.
Also, make sure that noise bars do not fluctuate up and down on the monitor screen.
(12) If step (11) is not satisfied, it indicates that the OHD arm is abnormal (deformed). Replace the OHD arm.

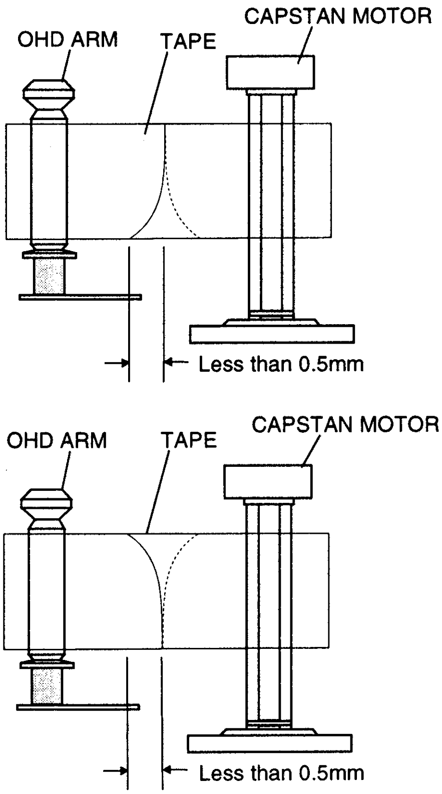


Fig. 3-7

4. CHECK THE TORQUE

There are two types of cassette torque meter.
Choose the applicable one for the measurement to be performed.

Item	VCR Mode	Measured Reel Disk	Torque Value	Torque Cassette Used
Take-up Torque	Playback	Take-up	10 ± 3 g-cm [0.00098 ± 0.00029 N·m]	NTSC: SRK-8T-112 or 132 PAL: SRK-8T-212 or 232
Rewind Torque	Reverse Search	Supply	24 ± 6 g-cm [0.00235 ± 0.00059 N·m]	NTSC: SRK-8T-132 PAL: SRK-8T-232
Take-up Brake Torque	Reverse Search to Stop	Take-up	10g-cm or more [0.00098 N·m or more]	NTSC: SRK-8T-112 or 132 PAL: SRK-8T-212 or 232
Slack Removal Torque	Unloading	Supply	25-50 g-cm [0.00245-0.0049 N·m]	NTSC: SRK-8T-132 PAL: SRK-8T-232

For Torque Value

Torque values are indicated in conventional units in this manual, along with SI units in brackets [ ].

Note:SI stands for Le Système international d'unités in French, which is an internationally unified measurement unit system.

HITACHI

UH MECHANISM TK No.6811E-1 Digital Media Products Division,Tokai

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Printed in japan (II)